MAY 5 _ 1924
Medical Lib.

Medical Times

A Monthly Journal of Medicine, Surgery and the Collateral Sciences
Published by THE MEDICAL TIMES COMPANY at 95 Nassau Street

VOL. LII, No. 5 NEW YORK, MAY, 1924 Twenty-Five Cents a Copy Two Dollars a Year

CONTENTS

Medical Responsibility for Country Care Examinations 97
ANNA MANN RICHARDSON, M.D., New York.

The Dietetic Treatment of the Gouty Diathesis 99
EDWARD E. CORNWALL, M.D., Brooklyn.

Disease and Development.....101
J. MADISON TAYLOR, M.D., Philadelphia, and HENRY WINSOR, M.D., Haverford, Pa.

Drug Eruptions 105
E. WILLIAM ABRAMOWITZ, M.D., New York.

Radium Emanation 109
WILLIAM L. HARRIS, M.D., Providence, R. I.

Medical Jurisprudence in Relation to Pure Food Laws 110
DANIEL R. FORBES, ESQ., Washington, D. C.

THE PHYSICIANS LIBRARY 114

EDITORIAL.
Press Co-operation 115
The Baby Scale 115
Our Farflung Metropolitan Practice.....115
On Menaces 115

MISCELLANY.
Attention Life Extension Institute.....116

PUBLIC HEALTH 120

Established 1872 *Entered at the New York Post Office as Second Class Matter*

GASTRON

The entire-stomach-gland extract

Submitted to the physician as a resource against gastro-intestinal affections.

GASTRON presents the complex proteins, coagulable and non-coagulable, the nucleo-proteins, amino-acids, etc., derivable from the gastric mucosa.

Agreeable solution—no sugar, no alcohol.

FAIRCHILD BROS. & FOSTER
NEW YORK

In 6 oz. amber vial without lettering, in order that it may be prescribed in the original container.

After a Surgical Operation

Malunion, delayed healing, low-grade infections, and other interruptions to recovery can often be forestalled by building up the tissues with

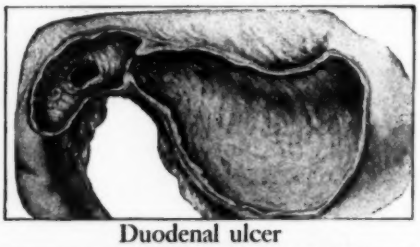
Compound Syrup of Hypophosphites "FELLOWS"

a continued course of which, after a surgical operation, will often accelerate the patient's recovery.

Samples and literature on request

FELLOWS MEDICAL MANUFACTURING CO., Inc.
26 Christopher Street, New York City, U. S. A.

Pyloric stenosis


Duodenal ulcer

Hemochromatosis (proctoscopic view)

Hemochromatosis (rectal section)

LUBRICATION THERAPEUSIS
IN GASTRO-INTESTINAL ULCERATIONS

A NOTED gastroenterologist points out that the first and last few feet of the gastro-intestinal tract are the regions where ulcerations most commonly occur. Ulcers of the esophagus, stomach, and duodenum are fairly common, he states, but those of the jejunum and ilium are exceedingly rare. Ulcerations in the upper digestive tract are practically never multiple, while those occurring in the lower bowel are usually multiple. In fact, routine proctoscopic examinations by one of the leading gastroenterologists have shown that ulcerations of the large bowel are much more common than heretofore supposed.

As you know, laxatives and purgatives given in gastro-intestinal ulceration cases are often the cause of the chronicity of this condition or of hemorrhage and perforation and are therefore contra-indicated. Naturally, a high residue diet is also contra-indicated.

Hence, Nujol, the lubricant *par excellence,* is best adapted to corrective *intestinal drainage* in these cases. Whether the ulcers are in the esophagus, stomach, duodenum or colon, its action is protective, coating the ulcers and favoring healing. Nujol furthermore produces its effect *without peristaltic unrest.* Injected directly into the colon, as an enema, Nujol has a very noteworthy effect in healing the ulcerations.

Nujol, the ideal lubricant, is the therapeutic *common denominator* of all types of constipation. Microscopic examinations show that too high a viscosity fails to permeate hardened scybala. Too low a viscosity tends to produce seepage. Exhaustive clinical tests show the viscosity of Nujol to be physiologically correct and in accord with the opinion of leading medical authorities.

Nujol

Guaranteed by NUJOL LABORATORIES, STANDARD OIL CO. (NEW JERSEY)

Medical Times

A Monthly Journal of Medicine, Surgery, and the Collateral Sciences

Vol. LII., No. 5 | New York, May 1924 | Twenty-Five Cents a Copy Two Dollars a Year

Board of Contributing Editors

WM. G. ANDERSON, M.Sc., M.D., DR.P.H....New Haven, Conn.
JOHN W. BOWLER, A.M., M.D.....Hanover, N. H.
EDWARD E. CORNWALL, M.D., F.A.C.P.....Brooklyn, N. Y.
LIEUT. JOHN DUFF, JR., Medical Corps.....United States Navy
KENNON DUNHAM, M.D.....Cincinnati, O.
W. L. ESTES, M.D.....South Bethlehem, Pa.
HAROLD HAYS, A.M., M.D., F.A.C.S.....New York
WALTER J. HIGHMAN, M.D.....New York
HOWARD LILIENTHAL, M.D., F.A.C.S.....New York
EDWARD H. MARSH, M.D., DR.P.H.....Brooklyn, N. Y.
ROBERT T. MORRIS, A.M., M.D., F.A.C.S.....New York
HENRY T. MORTON, M.D., F.A.C.S.....Brooklyn, N. Y.
GEORGE THOMAS PALMER, M.D.....Springfield, Ill.
JOHN O. POLAK, M.Sc., M.D., F.A.C.S.....Brooklyn, N. Y.
JOHN PUNTON, A.M., M.D.....Kansas City, Mo.
CHARLES S. ROCKHILL, M.D.....Cincinnati, O.
DUNBAR ROY, M.D.....Atlanta, Ga.
DUDLEY A. SARGENT, M.D.....Cambridge, Mass.
ALBERT H. SHARPE, M.D.....Ithaca, N. Y.
JOHN P. SPRAGUE, M.D.....Chicago, Ill.
ALMUTH C. VANDIVER, B.S., LL.B.....New York
REYNOLD WEBB WILCOX, M.D. LL.D., D.C.L.....New York

Medical Responsibility for Country Care Examinations

ANNA MANN RICHARDSON, M.D.,

COMMITTEE ON DISPENSARY DEVELOPMENT, UNITED HOSPITAL FUND.

New York

Few doctors appreciate that they have responsibility for relieving the anguish endured each summer by health and social workers in their effort to get their city charges examined and graded for country care. To the busy practitioner, thinking in terms of treating illness, these examinations seem rather trivial. If he is good natured and not too rushed he will obligingly give the children the "once-over" in his clinic or office, thereby salving his charitable conscience and pleasing the anxious and intense social workers. That these examinations may be made of permanent constructive value to each child does not often figure in the doctor's calculations, nor do the over burdened social workers usually appreciate that examinations, if thorough, can render service beyond the immediate need for a certificate.

In the spring of 1922 the Committee on Dispensary Development received many requests from health and social workers urging that examinations of children for country care be included in the services of certain experimental examination stations managed by the Committee at that time. A little observation soon showed that in communities like New York the management of country outings in June and July assumes the proportions of an industry, an industry wholly for the benefit of the city. The Committee, therefore, felt that the medical phase of the undertaking should be definitely shouldered by medical groups. As dispensaries, the most natural resources, could not reasonably be expected to undertake the service, because they are already overcrowded with the care of the sick, the Committee decided, in cooperation with Greenwich House, to work out a system of making these examinations under medical supervision, but in a non-medical institution. On this basis examinations were conducted at Greenwich House in the summers of 1922 and 1923. In all, 684 children were examined.

The Plan for the Work

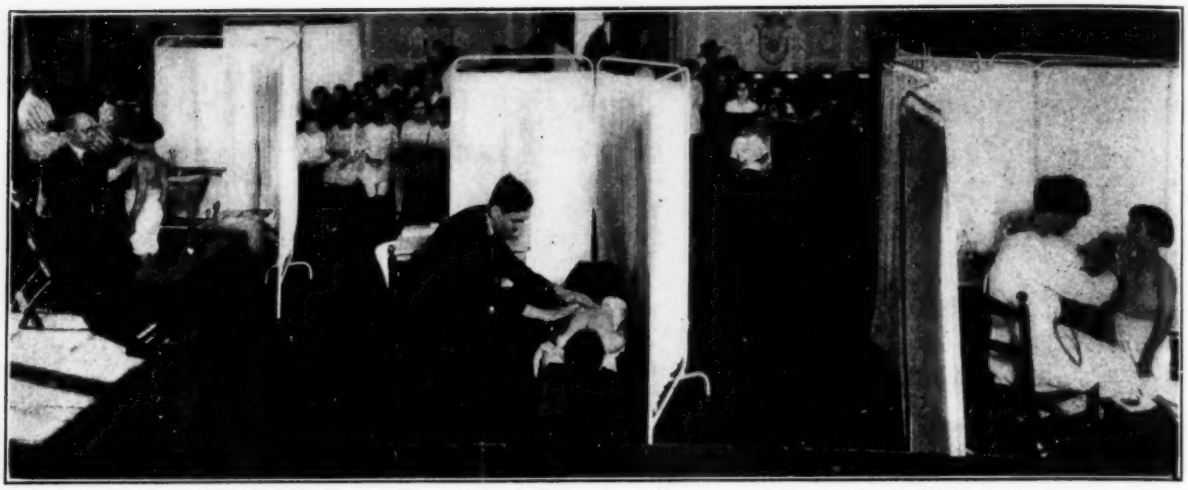
The plan for the work included as necessary factors a complete detailed examination of each child, accurate recording of the results of tests and medical findings, a medical summary of each case made by a doctor, and as strict an economy of time and money as was compatible with satisfactory results.

A little study of the situation suggested that the time of health and social workers usually spent in taking children to clinics for their examinations might well be used to assist in the actual examinations; also by conducting the examinations in groups, time could be saved. Therefore all parts of the examinations that did not require a physician's technique and judgment were made by nurses borrowed from the agencies planning the country outings, as well as from the staff of the Committee on Dispensary Development. The parts of the examinations thus disposed of were tests of vision and hearing, pulse and temperature and a search for nits. The taking of height and weight of the children, the starting of the records and the calculating of per cent. deviations from average weight for height and age was done by volunteers.

It was planned to have five physicians examine simultaneously for two hour sessions. Twelve appointments were made for each doctor thus allowing sixty children for each session. As a matter of fact, the average was seventy, with eighty-two on one day. Things went so smoothly that we did not realize the increase until the records were counted after the session. The illustration gives an idea of how the examining clinic was set up in the auditorium at Greenwich House. By the use of screens the doctors had adequate privacy. Such simple furniture as was available met the needs of the situation satisfactorily. Each physician used the instruments he usually carried for home visits, supplemented where necessary by an electric otoscope.

Five physicians, five nurses and four volunteers were needed to perform the service suggested above as well as to manage the children, steering them from test to test and keeping them interested and in order.

A simple record form, multigraphed on 5"x8" ruled cards was adopted as shown herewith. It came to the doctor with the examinee, filled in down to the medical history. The doctor completed the record as he made his examinations. As this recording was brief, the time



MORE THAN A ONCE OVER

consumed in writing down his findings afforded the doctor a chance to size up the child's condition, thus when he reached "Summary" he was ready for it. Clerical service for the individual doctor really slowed the work, because if the doctor dictated his findings as he went along he usually had to re-read his dictation before making his summary. Also most doctors could get the child's confidence and cooperation more readily alone than with a third person present.

The Examination

The examinations were thorough enough to detect needs for treatment, but not necessarily sufficiently complete to reach a diagnosis. For instance in relation to teeth, the doctor would make such entries as "caries—immediate attention," or "hygiene only." Suspicious heart conditions were frequently referred to a dispensary for more detailed study. The average time taken for an examination and record varied considerably, some physicians requiring as little as seven minutes per child, and others as much as twenty. Their standards for treatment needs also differed, especially in relation to tonsils.

The first picture illustrates the arrangement of the room and the three positions in which each child was examined. The second picture shows an average city child, not sick, yet with faulty posture, carious teeth, diseased tonsils, pediculosis and ten per cent. underweight. The record form indicates the extent of the examination. Vaginal smears were taken of little girls showing a discharge on examination.

Findings from the Examination

In the two years 684 children were examined of whom nineteen were under six years of age and ninety-seven were twelve or over, the great majority, 568, being between six and twelve.

The defects found are shown in the accompanying table.

DEFECTS AMONG 684 CHILDREN EXAMINED FOR COUNTY CARE

	Number	Per Cent.
Dental defects	330	48
Pediculosis	310	45
Defective vision	247	36
Tonsils (total 363) (referred for treatment)	212	31
Underweight more than 5 pounds	195	29
Cardiac-murmurs and irregularities	100	15
Skin conditions	82	12
Defective hearing	58	8
Overweight	43	6
Lung conditions	25	4

On the basis of these findings a wise selection of country opportunities could be made for each child. For instance St. John's Guild operates Sea Side Hospital with special reference to removing tonsils and adenoids and to keeping the child for a convalescent period. The various Children's Aid Camps and Homes have medical and nursing supervision so that cardiac conditions and severe cases of malnutrition can be cared for intelligently.

Following the examinations the records were distributed to the agencies or groups acquainted with the children as a basis for a definite health program for each.

The Cost of the Work

The only cash expense for this experimental work was the $5.00 given each doctor for each session in recognition of his services. For the entire number examined this averaged 33 cents a case. If nursing had been paid for at current Henry Street rates, 23 cents would have to be added to the cost of each examination.

EXAMINING CHILD FOR COUNTRY CARE

Name..... Address.....
School Grade..... Age..... Sex.....
Ht..... %+..... Vision R..... Hearing R.....
Wt..... %—..... Vision L..... Hearing L.....
Pulse..... Hair..... Temp.....
Illness and Accidents this year:
.....
.....
.....
.....
Physical Examination:

Eyes	Glands	Genitalia .....
Ears	Heart	Posture .....
Nose	Lungs	Back .....
Throat	Abdomen	Skin .....
Teeth	Feet	Mentality .....
		Nutrition .....

Other:
.....
.....
.....
Needs medical care
Now..... for.....
Later..... for.....
What extra diet suggested.....
Can enter into all sports.....
Sports only under supervision..... No sports.....
Summary:
.....
.....
.....
M. D.
.....

Form for recording results of examinations for country care. All items above first heavy line are filled in by nurses or volunteers.

Significance of the Work

That country care examinations have a broader application than the accurate filling in of the certificate blank for health or social agencies is evident. Vacation is the time when children are free from the confinement and restrictions of the school room and when wise and foresighted health planning can yield most advantageous results. This need is not limited to the tenement children; all children might well be examined so as to receive suggestions as to diet, exercise, rest and recreation at a time when they are free to follow suggestion. Conditions can be checked up on their return to evaluate gains or losses and to serve as a basis for needed limitation or expansion of their winter schedule.

Although to direct children's recreation is not at present recognized as a responsibility of physicians, doctors can advantageously use their influence to emphasize the necessity of mastering the technique of various games and sports in youth. Practically, in relation to the country care examinations, all the doctor can do is to suggest forming such affiliations as scout troops or camp fire groups offer, and to stimulate the individual child to take an active interest in athletic activities.

In conclusion, I want to urge physicians to examine their child patients before and after their vacations, and encourage them to learn to swim, to hike and row, to play tennis, golf or ball; also to recognize their responsibility for the children of the community, as well as for their private patients.

Examine them before their vacations. Plan for and encourage them as occasion offers so that they may have outings that will prevent their visiting the crowded clinics next winter.

Above all let physicians join with the other workers in health fields and definitely and effectively assume the responsibility for medical examinations for country care.

17 West 43rd Street

The Dietetic Treatment of the Gouty Diathesis

EDWARD E. CORNWALL, M.D., F.A.C.P.,
Brooklyn, New York

Insufficiencies and perversions of nitrogenous metabolism manifest themselves in many ways; they often complicated other metabolic disorders; they are not well understood. Perhaps the most clearly defined entity in this pathological group is the one generally termed gout or the gouty diathesis.

The distinguishing feature of this metabolic disorder seems to be inability on the part of the organism to manage with average facility the purins. There is slow formation, slow destruction and delayed excretion of uric acid, and increase of urates in the blood. This condition may be acquired by dietetic excesses, but in a large proportion of cases a hereditary predisposition, a constitutional weakness, exists.

As a result of the inability to manage properly the purins, urates may be deposited in the tissues producing definite lesions; and there may be other less obviously traceable pathological results of the dysfunction. A familiar manifestation of this diathesis is seen in an attack of acute gout; renal lithiasis with precipitation of excessive amounts of urates in the urine, and gouty tophi are also manifestations of it. Chronic nephritis seems sometimes to depend on it.

The treatment of both acute and chronic gout calls for dietetic regulation. A typical attack of acute gout calls for great restriction of food. At first only barley water or barley water with lemon juice, water, and a moderate amount of alkalis should be given. Potassium and sodium citrate have been recommended as alkalis to be preferred. The amount of alkalis given should depend on the degree of acidity of the urine. After a day or two milk may be given, and then cereals and selected fruits and vegetables. The return to the ordinary diet should be made slowly, and articles which have an appreciable purin content should be excluded generally from the diet.

The indication to exclude puriniferous articles from the diet in the gouty diathesis is the outstanding dietetic indication. Other important indications are to keep the total amount of food down to the minimum health ration, to safeguard against indigestion and to favor other metabolic weaknesses which may be present. An excess of fat should be avoided, for there is reason to believe that such an excess helps on the development of uric acid pathology; and the clinical evidence of the bad effects of sugar in the diet of the gouty is sufficiently strong to give the indication to restrict that article of food. The clinical relationships observed between gout, diabetes and obesity suggest that the metabolic reserve power in the gouty diathesis may be encroached on from several sides. The ideal diet calls for minimum health rations of protein, fat and carbohydrate, given in articles which are purin free and otherwise unobjectionable, with a

moderate excess of alkalis and water enough to secure free solution and elimination.

The following articles of food are to be shunned in the gouty diathesis because they contain, according to accepted analyses, purins in notable quantities, viz. animal flesh generally and particularly the glandular tissues, and a few vegetables. The sweetbread (thymus) contains 70 grains of purins to the pound, and the liver, 19 grains. Steak contains 14 grains to the pound, and sirloin, 9 grains. Most meat, fish and poultry contains between 4 and 8 grains to the pound, and the legumes between 2 and 4 grains. Oatmeal contains 3 grains to the pound, asparagus, 1.5 grains, potatoes and onions, about one fifth grain, and spinach and mushrooms, appreciable amounts.

The following articles, which are purin free or have purin contents so small as to be negligible, constitute the preferred class in the dietary of the gouty, viz., milk, cheese, cream, butter, eggs, white bread, rice, tapioca, sago, cabbage, lettuce, cauliflower, all common fruits and most green vegetables.

The purins in tea and coffee seem not to undergo the same metabolic changes in the body as the other purins, and therefore may not need to be so rigorously excluded from the gouty diet as the others.

While the gouty diathesis calls for a purin free diet in general, cases are met with in which a small amount of meat may be allowed without apparent serious detriment and with some advantage. In such cases the articles which contain the lesser amounts of purins are to be preferred, as bacon, codfish, haddock, chicken, mutton and ribs of beef. Boiled meat has an advantage over the broiled or roasted in that it has lost some of its purins in the process of boiling. Bacon is particularly valuable for adding variety to the diet because its purin content is comparatively small, it is ordinarly easy to digest, and not much of it is usually eaten at a meal.

The digestibility of articles of food is of the first importance, because indigestion is a factor which makes for trouble in the gouty diathesis.

The daily protein ration should be about 70 grams for the average individual, and the fuel ration should correspond to the requirements of climate and activity.

The following dietetic prescription is offered as an example of a purin free diet suitable for a patient with the gouty diathesis, fifty years old, 5 feet, 7 inches high, weighing 63 kilograms, and leading a life of very little activity.

Purin Free Diet. P. 75, F. 85, C. 210, Cal. 1,900.

Breakfast.

Orange, grapefruit, peach, muskmelon, apple, pineapple, watermelon, or huckleberries, 180 gm. (6 oz.).
Wheatena, cream of wheat or rice, boiled, 240 gm. (8 oz.).
Cream, 120 gm. (3 oz.).
Eggs, two.

Dinner.

Milk; or milk soup, viz., cream of celery, carrot, oyster plant, corn, cauliflower, cabbage or lettuce, 180 gm. (6 oz.).
Carrot, squash, celery, string beans, oyster plant, cabbage, cauliflower or turnips, cooked, 180 gm. (6 oz.).
Lettuce, celery, endive, tomato, watercress or cucumber, raw, 120 gm. (4 oz.).
Olive oil, 7 gm. (¼ oz.).
Lemon juice, as wanted on salad.
Cottage cheese, or American, Edam or Swiss cheese, 60 gm. (2 oz.).
White bread, 45 gm. (1½ oz.).
Maccaroni, boiled, 120 gm. (4 oz.).
Butter, 15 gm. (½ oz.).

Supper.

Vegetables, cooked, as at dinner, 180 gm. (6 oz.).
Fruit as at breakfast, raw or cooked, 180 gm. (6 oz.).
Milk, 240 gm. (8 oz.).
Boiled rice, 180 gm. (6 oz.).
White bread, 30 gm. (1 oz.).
Cream, 30 gm. (1 oz.).
Butter, 15 gm. (½ oz.).

To increase the fuel value of this diet, boiled rice, tapioca and acceptable fruits may be added. To diminish the protein content, one or both eggs may be omitted. Buttermilk and other modifications of milk, or equivalent amounts of cottage cheese, with cream may be substituted for the whole milk.

Milk diets balanced with fresh fruit juices are purin free; and lactovegetarian diets may be made sufficiently so for practical purposes by excluding the questionable vegetables. Although potatoes and onions contain appreciable amounts of purins, the amounts are so small that those articles may often be allowed; and the value of an occasional small allowance of animal flesh in the diet in some cases has been alluded to.

1218 Pacific Street.

Life Assurance and Syphilis

The bearing of syphilis upon life assurance is discussed by W. P. S. Branson in the current number of St. Bartholomew's Hospital Reports, (vol. lvi, part 2). Dr. Branson begins by inquiring into the incidence of syphilis among the insuring population, and comes to the conclusion that the vast estimate is a figure of about 10 per cent. He then discusses the effects of syphilis as a lethal disease, and points out that it may kill as the result of (1) general paralysis of the insane, (2) aortic aneurysm, (3) gummatous disease of the cerebral vessel, (4) taves dorsalis, (5) epithelioma of the tongue, implanted on syphilitic leucoplakia, (6) suicide.

Branson admits that there are other causes—one of the most common is cardiac failure from syphilitic disease of the coronary arteries, and this probably increases the mortality amongst syphilitics to a large extent.

The author takes up the period at which syphilis produces fatal results and points out that general paralysis and aortic aneurysm cause death between 30 and 50, while tabes, when it kills, as a rule kills late in life. He is not impressed with cerebral syphilis as a cause of death, but statistics of the American life offices showed that the mortality among syphilitics was very high the first six years after infection, and death was almost always due to cerebral syphilis.

It is well known that syphilis has been cured by mercurial treatment as recommended by Jonathan Hutchinson, who noted the occurrence of a second primary chancre after such treatment, and cases have been described of second infections after tratment with arsenic; but it is probable that in the great majority of cases once syphilis has been contracted, whatever treatment, it is always liable to recur. This is especially true when any secondary manifestations of disease have developed. Branson does not place extravagant confidence in the Wassermann result. The blood test may be negative while the cerebrospinal fluid is positive, and it is no uncommon event for the blood to be negative today and positive in six month's time. He says however, that he considers a positive W.R. as a bar to life insurance.

While agreeing with Branson that a negative W.R. is of no value as evidence of a permanent cure of syphilis, we are not so sure that a positive W.R. should be a total bar to life assurance. In a recent case a proposer, who had been perfectly well for seven years after contracting syphilis, was found to have a positive W.R. and in his anxiety to turn it into a negative one he had no less than 20 injections of neosalvarsan in twelve months, the W.R. continuing positive, though he himself was in good health.

Dr. Branson draws up rules as to the eligibility for insurance of lives who have had syphilis, and comes to the conclusion that those who have exhibited terticary lesions, who have Argyll Robertson pupils, or leucoplakia of the tongue are ineligible, while increased rates must be charged for those who have had secondary manifestations and have been thoroughly treated for three years or more. He considers those who have been thoroughly treated in the primiry stage and can produce evidence of negative W.R. three years or more after contracting the disease may be taken at ordinary rates. Some experinced observers would not entirely exclude cases of tertiary skin lesions, as many of these cases often live a very considerable age. But all cases, even those giving a history of a primary sore only, should, we are convinced, be rated up.—(*Lancet, September* 1, 1923).

Disease and Development

J. MADISON TAYLOR, M.D.,
FORMERLY PROFESSOR OF PHYSICAL THERAPEUTICS, MEDICAL DEPARTMENT, TEMPLE UNIVERSITY,
Philadelphia
and
HENRY WINSOR, M.D.,
Haverford, Pa.

(Concluded from April issue.)

Inherited Movements in Plants and Animals

$H_2 + O$, + heat = H_2O, i. e., steam
$H_2 + O$, plus moderate heat = H_2O, i. e., water
$2\ H_2 + O_2$ or $2\ O$, + cold = $2\ H_2O$, i. e., ice.

The motion of oxygen or hydrogen towards each other, makes a new compound, which reacts differently under different conditions, they move differently. If the reagents are changed or the environment is changed, the motions change and the result is different. Under similar conditions, similar compounds move similarly, and the motion is said to be inherited. If the reagents are changed the motion is changed. $C + 4\ H = CH_4$. $O_2 + C = CO_2$: $2\ C + 2\ H_4 = 2\ CH_4$, so, the chemical qualities remain. If the environment is changed by adding or subtracting heat and pressure, the motion is different, it is not inherited.

Spermatic chromosomes + ovarian chromosoes, + heat and blood and similar conditions in the uterus to that of the parents=offspring similar to parents, inheriting similar protoplasm reacting, moving similarly to the parents at a corresponding age under similar uterine conditions.

The egg in its movements, cell division, must move, divide like the egg of the parent, provided the uterine environment of the egg, resembled the uterine environment and the protoplasm of the egg from which the parent developed. Similar chemicals behave, i. e., move similarly under similar environmental conditions. Similar egg chemicals, (protoplasm), react, i. e., move similarly under similar environment. The embryo is a direct continuation of the parents' lives, under similar conditions, uterine environment: so with the child if its environment is like, that of its parent. But eggs of different mothers differ, and in the same mother there are differences in eggs; so with spermatazoa.

The uteri and ovaries of different individuals differ. The ovary and uterus differ in youth and age. The uterus of a multiperous woman differs from that of a virgin. There are met variations in temperature and of vascular pulsations and contractions of the uterine muscles. So there are varying conditions in temperature, pressure and nutriment in the egg and embryo environment. So the movements of eggs, cells and gross movements differ and so children born of the same parents may be quite different, reacting differently because of their differing uterine environment.

The squab having grown too long for the egg-shell which surrounds it, is mechanically bent into a spiral or rather a semi-spiral form. He absorbs all of the yolk and becomes hungry. The stimulus of hunger and the irritation of the surrounding shell, causes him to eat his way out. Entirely too few chipping of shells are found in the nests of pigeons and chickens after hatching the young, so that the young have eaten much of the shell, being doubled in semi-spiral form. The egg-shells, when vacated by the young have been partially eaten up in an oval. The two unequal parts if placed together will be observed to be shorter than the original egg. If the chick or squab be assisted from the shell before he has eaten his way out, he will cease his pecking movements. Then it can be said that these movements are inherited at a corresponding stage or age to that of the parents.

It will be seen that the squab inherits the tendency to move exactly the same way the parent moved at a corresponding age and stage under similar environmental stimuli. So similar environmental stimuli give rise to similar movements at similar ages and stages in similar embryos similar to their parents. The strength of movement acquired by tapping the egg probably for a day before birth, and at least six hours before birth, is relatively great. It is not known how much movement of the legs and wings before birth from the shell has to do with their development. The last three weeks in the nest are spent alternately resting, and violently exercising its legs and especially its wings. Every time the parents approach the nest, the squabs rise up and violently beat their parents with their wings, imploring them for food and by squealing. These movements are the reactions to the stimulus of the sight and cooing of the parents occurring in a similar age and stage of the parents when they were squabs.

By these exercises the squab acquires a sufficient development of the wings and their feathers and muscles to fly down from the high nest at six weeks. Would any one deny that the tendency towards flying movements, when first falling or being pushed from the nest, that the flight of the young bird was a response to the sensation of falling, inherited at a corresponding stage? Or that the sight of water stimulated young ducklings to wade in and swim in response to their environment; even though their foster mother remonstrated with them? The chicken does not try to swim if brought up with ducks, nor do dogs try to fly when falling through the air. The stimulus of the environment causes the movements. The movements develop the animal. The stimuli must occur from the environment at the proper time; the movements must occur in the proper order; and the development must follow in the proper sequence. The squab must chip the shell at the proper time reacting to the stimulus of its environment, the hard shell, and hunger, because of the lack of yolk. The parents respond to the demands of the young and feed it. The young exercise their wings and legs developing them; later they fly. They mature: go through a courtship with other pigeons; responding to the sight of a suitable mate at a corresponding age.

The sight of a desirable nesting place stimulates the desire to make a nest. The hen lays eggs; these eggs encourage the desire to incubate them. Finally the squab is stimulated by hunger to chip the egg; the noise he makes stimulates his parents to secrete a suitable soft diet for feeding the squab when it leaves the shell. They continue to warm it till it acquires feathers. They feed it more and harder diet according to the stimuli of the young squealer's demands. Supposing the stimuli came at the wrong time; or order. Would the calf feed the cow with milk? Does the cow furnish copious milk while carrying the calf and become suddenly dry at the birth of the latter? Does the new-born bird lay eggs? Does the bird feed the egg?, or after it grows up does a squab try to incubate its parent?

These questions are no less absurd than the questions of those who would deny the order of evolution. As in the adult so in the egg and embryo. The spermatazoon is attracted by the egg, the egg is stimulated to movement, to division into cells. The stimuli acquired from the uterus cause other embryonic movements; these movements develop the organs and structures. The stimuli must occur at the proper time; the movements must follow in proper order; development must be by sequences. Any change in order, place, time or character of environmental stimuli, or of embryonic response by movement; or of response to movement by delayed or impaired development, will produce varied, monstrous, retarded or incomplete results and disease or that too perfect balance between the internal and external factors in which all movement ceases and cessation, what is called death, takes place. The egg and the spermatazoon are direct continuations of the parent substance. Granting that inheritance is transmitted by the chromosomes, the egg cell loses about half its chromosomes, and acquires about half of those of the spermatazoon. Observe that the spermatazoon has a spiral coil in its neck, and that there is usually little activity of the egg till the moment of fertilization. Except for the chromosomes and other protoplasm of the egg, after its first division everything else must be *acquired* by reactions to the stimuli of its environment. Much, if not all, of its future activity must be largely due to environmental stimuli. After countless divisions of its chromosomes and cell substance, is not all of the original substances lost and new, atoms and molecules acquired? After being infinitely divided and greatly added to by absorption from the uterine juices, it would appear that the actual or direct hereditary influence was gone; and nearly everything from uterine environment must become the more important. By the time the embryonic stage is reached, almost all of the original reagents have been replaced by new reagents and the environment has changed from ovarian or tubal to uterine.

The power of inheritance, if any is left, is converted into new conditions, new reagents. Being made of protoplasm similar in nature to the protoplasm of its parents at a similar age or stage, it will react similarly if the uterine environment be similar.

As the parents moved so must the offspring move at a corresponding age by similar stimuli from the environment. "A baby bear had been picked up by miners—before its eyes had opened. Raised to adult bear-hood, without ever having seen an adult bear, it was taken to a shallow salmon stream. It located a natural point of vantage, straddled the brook with its face down-stream, bending over, with upraised right paw, and with wonderful dexterity, it was able to scoop the onrushing salmon out of the stream and to throw them on the bank in an even pile with a single motion, until it had accumulated a considerable pile of salmon on the bank. Going to this pile, it quickly sorted over the fish, making now two piles instead of one,—with all the male salmon in one pile, and all the female salmon in the other. Then, with its sharp claw, it proceeded to split open the female salmon and to extract the roe, which it ate with relish. This consumed, it finished its meal on the other meat of the fish. This domestic bear, without ever having seen another bear,—*did, unhesitatingly, just what any normal wild-raised bear would have done.*"[45] So, the sight of the stream and the smell of the fish stimulated the bear to move just as its ancestors had done when similarly stimulated by a similar environmental stimulus at a similar age or stage. "There can be no question in the case of hereditary of plants,—of sweet peas,—here is a plant which has inherited the climbing, twining tendency. It would be interesting to take a motion picture, making our snap-shots one every three minutes, so that the reel would cover a period of fifteen days; to run it through the projecting lantern at the rate of fifteen to the second, thus showing in eight minutes the *motions of growth* which actually took fifteen days to accomplish; on the screen before us, with quick, darting motions, we should see the sweet peas wriggle and writhe and squirm; we should see it wave its tendrils around in the air, feeling out every inch within its reach for possible supports on which to twine."[46] So there can be no doubt of the inheritance of spiral growth movements by responding, reacting, moving exactly as did their ancestors, when similarly stimulated at a similar age or stage.

"Camera snaps picture of developing bird through window in shell. Movie shows egg become a chicken. Taking microscopic pictures at any interval desired, this machine cap can also record the details of chemical reaction, the action of white corpuscles and the growth of new tissues in the healing of wounds, the building up of fine crystals from solutions or the gradual changes inside the egg of a fish from the original clear fluid to the fully formed baby fish. One of the experiments soon to be made is that of placing a group of healthy cells and a group of cancer cells together in a solution to show the attack by the malignant body. One of the most interesting of these films was a microscopic study of the life cycle of the oyster. It is planned to use the instrument for the study of many plant diseases."[47]

To accept the microscopic movements, the spiral growth movements of the trunk, as the mechanism of plant development; and to deny the greater movements of animals to be the cause of their varying development would indeed be inconsistent. The previous citations arouse the suspicion that all change, normal or abnormal, follows the route of motion beginning from without and eliciting movements along the lines of least resistance; in embryos called growth movements causing development in growing individuals provided all reagents and environments are similar to those of the ancestors at a similar stage; and making abnormal development, disease and death, if different from reagents acting on the ancestors, or of improper, time, place or kind, etc.

Blood-worms, filaria sanguinus hominis, have movements resembling, on a gross scale, the micro-

scopic circumnutation of plants, yet they have no muscles. It is not until the higher worms are reached or mulluscs, arthropods and crustaceans, that muscles are observed. "The environment must have been the primordial factor in evolution", (Spencer). Buffon, "The direct influence of the environment and their conservation through heredity."[48] "All animals undergo transformations, in part produced by their own exertions, in response to pleasures or pains, and many of these acquired propensities are transmitted to their posterity,"[49] and as the "function causes the structure" (Guérin), then movements of the environment, caused movements in the remote ancestors, muscles developed as a result of these movements in ancestors and environmental movements cause embryos at a corresponding stage to acquire muscles. "Contractility as well as irritability is a property of protoplasm.[50] The production of contractility in certain localities, is due to the more frequent excitement in these localities possessed by undifferentiated tissues in general.[51] Repetition of contraction furthers the formation of the matter which contracts and greater draughts of blood determine greater vascularity."[52] Of muscles, we have, I think, good grounds for believing that they are functionally produced."[53] As, "Ontogeny is a brief recapitulation of phylogeny,"[54] then muscles, vessels and, as will presently be seen, bones, etc., were all due to movements transmitted from a moving environment both in the embryo and in his remote and lowly ancestor at a corresponding age and stage.

"There is no known vertebrate in which the whole of the germ-product is not subordinated to a single axis."[55] Originally the vertebrate was unsegmented, but in bending its body from side to side in locomotion through the water, its spinal column became divided by the action of the simple mechanical force."[56] "Mr. Herbert Spencer has endeavored to account for the origin of segmentation of muscles into myotomes, and the division of the sheath of the notocord into vertebrae, by supposing it to be due to the lateral swimming movements of fishes, which first exhibit these structures. His general principle holds good, now that paleontology has cleared up the subject."[57] The myocommata (or myotomes as now called),—effect quadrate masses of denser tissues which represent neural spines, even in the amphioxus. It is by the development of neural spines and after them of haemal spines, that the segments of the vertebral column are first marked out."[58] At the points of greatest flexure joints would be formed, and between these joints the deposit would be continuous."[59] False joints are often formed, (e. g., fracture of thigh), joints which rudely simulate the hinge-structure of the ball-and-socket structure, according as the muscles tend to produce a motion of flexion and extension or a motion of rotation."[60] In kindred ways the genesis of articulations and limb-bones may be explained."[61] Of the vertebral column, "Suppose a permanent bend to have been caused by the weight of the body: the subsequent result is an unusual deposition of cartilagenous and osseous matter on the concave side."[62] (They are called stütsconstructions by Beneke and Schantz). "This fusion occurs most extensively at the point of greatest curvature, and on the concave side of the curved and rotated spine,"[63] and comparable to epinasty and hyponasty in plants.

It is now in order to compare the environment of man's earliest ancestors with the environment of his earliest embryonic development. As his ancestors started their development by fertilization of the ovum by spermatazoom, so must man now start his earliest development. The earliest part of the spermatazoon's life when in the testicle is immobile, the illustrations in text-books show it to be oval and with a relatively short tail. As it acquires motility in the fluid medium of the vas deferens and seminal vessicles its tail lengthens. The fluid medium increased its sphere of activities and lengthened its tail by more violent exercises. The ovum is a stationary body, and is nearly round, showing but little activity till fertilized. It is rolled along by the cilia and peristalsis of the muscle tissue in the wall of the Fallopian tube. If fertilized before it has passed along the tube, or even in the ovary, it may grow too large to reach the uterus, and a tubal pregnancy will then result, (Hitchman, Schauta Clinic, Vienna). So far as known this invariably results in death of the embryo, because it never reaches an environment, the uterus, normal to a later age or stage. By contraction of the tube, or by contraction of the uterus, the egg elongates itself. It becomes buried in the uterine mucosa; by contractions of the cavity surrounding it, it becomes folded so that the neural groove developes on its dorsum, said to be due to "invagination or evagination" at the side of the groove. "The production of folds, including evaginations and invaginations, due to unequal rapidity of growth, is the essential factor in moulding the organs and hence the general form of the embryo."[64] The embryo, now or just previously to this time, begins to show a bilateral symmetry, increased by this groove. The embryo is still in a vegetative stage; therefore analogy with vegetable life seems permissible. In flowers, "The symmetry remains radial where the conditions are equal all round; shows deviation towards two-sidedness where there is decided two-sidedness of conditions, becomes decidedly (bilateral) where the conditions are decidedly bilateral: and passes to an unsymmetrical form where the relations to the environment are unsymmetrical."[65] The comparison is between the growing protoplasm of a young plant and the growing protoplasm of an embryo animal or animal ova, as affected by the pressure of the environment. But they are still very lowly animalculae of which Lull says, "Plankton (wandering) [creatures] are the animals or plants which float in the water largely at the mercy of wave or current, as they possess little or no locomotive powers other than the abilities to rise or sink. In general form planktonic organisms are, as a rule, radially symmetrical, for locomotion in one direction is what usually determines bilateral symmetry"[66]. So locomotion of the spermatazoon in one direction and pressure of the narrow tube of the vas deferens determined his elongation, and the flattening and beginning bilateral symmetry of his head. The locomotion of the egg through the Fallopian tube gave the first impulse towards elongation of the egg and beginning bilateral symmetry. The bilateral pressure in the uterus increased these tendencies. The unequal pressure gave the first impulse towards the invagination of the neural groove. If objection be made to comparing the earliest stages of plants and animals with their earliest embryos, let it be noted that no naturalists claim to be able to distinguish the lowest animals and plants as to the kingdom to which they belong.

In the earliest stages of their first forming cells it would be difficult to distinguish the plant and animal; such conflicting views are against the unity of all nature, and the unity of her laws of development[67]. As long as the early stages of plants and animals are soft, there is no reason to suppose that the effects of pressure should differ in the elongation and symmetry of the two.

As the current of water in streams, or the waves or ripples of fresh or salt water gave the first impulse towards elongation, and motion in the lancelet and young fish, so did currents of moisture in the soil first move the rootlets of plants; likewise the movements of the sun, air and rain caused movements in the stalks of young plants; also the cilia of tubes and their muscles give an onward movement to spermatazoa and ova and exaggerate movements in them resulting from expansion of their yolk in gases. The great length of the vas deferens in the male may serve some advantageous purpose furthering movement of spermatazoa. The dependent position of testicles in most male mammals agitate the young and developing spermatazoa into a response which results in their acquiring independent motility. Undescended testicles probably contain no motile spermatazoa for cryptorchids are notoriously sterile. The great activity of birds in a wild state gives a sufficient agitation to start motility in the spermatazoa, ova and developing ova after fertilization. Sterility and confinement of wild birds and animals accompany each other. Great fertility of the domestic ram is accompanied by testicles which almost sweep the ground and are kicked and agitated at every step; the wild ram's testicles and scrotum are much shorter, because of his greater activities, such lengthening would be unnecessary and injurious. "Loeb and others, have found that artificial parthenogesis may be induced, by agitation," in very low type animals[68]. Excessive agitation in the centrifuge at a certain stage causes larvae of styela to become monstrous or inverted[69]. Violent shaking of hen's eggs reduces the chances of their hatching, transportation by railway may prevent their hatching. On the other hand, the rhythmical moistening, cooling of hen's eggs by the hen's searching food in the wet grass, as well as by turning the eggs over with her bill, accounts for the poultry raiser's attempts to imitate such changes, in the environment of an artificial incubator.

Mendel 'dominants and recessives explain much in a general way, but nothing specific for the individual. Suppose of four individuals born from different colored parents, A and B are black; C is white and D is particolored, black and white spotted or grey. The question now arises why was not A white; B grey; C black and D some other color than exhibited? Boveri's differing chromosomes present a similar difficulty. Why should A and B have had chromosomes with a preponderance towards black, instead of C and D individuals. Haeckel says, "We are able to trace the mutability of individuals to the mechanical conditions of nutrition"[70]. Inheritance and adaptation, like all other phenomena of life, are purely mechanical processes of nature, that is, they depend upon the molecular phenomena of motion in organic matter"[71]. Variations in the environment of each spermatazoon, ovum, or fertilized ovum, due to mechanical differences in the quantity of nutrition, could explain why individual A should acquire more chromosomes of black dominant, other smaller vessels nourishing C could explain why he received less pigment, differences in the absorptive power of C might explain why he acquired less dominant pigment and remained white or grey colored. "Mall never hesitated to assert that all of these peculiarities could be attributed to faulty," (different) "implantation in the maternal mucosa"[72]. State otherwise, different fertilized ova, implanted differently in the uterine mucosa, would have differing mechanical conditions of nutrition and differing motions of molecular phenomena. Stockard and others produce monstrosities by chemical, physical and other agencies almost regardless of chromosome variation and of dominants and recessives; so that intra-uterine conditions are important as well as the phenomena of Mendel and Boveri.

Just as the bodily movements of the father shook up and enlivened the spermatazoa, and the contractions of the vas stimulated them to move themselves by their tails like a fish or tad-pole, so did the movements of the cilia of the tube and its contractions stimulate motion in the ovum. Whether the motion is called celular, or growth, or physical gross embryonic movements, the principle is the same. As the ripples and currents of the stream, caused the young fish to acquire movement, and as these movements developed his muscular segments, and as these movements further developed the segmented vertebrae, vessels and nerves, so did the movements of the mother in walking about, and by her uterine contractions, and uterien vessel pulsations, and by the daily rise and fall of her temperature, stimulate movement in the early embryo. The movements so acquired developed his muscles into segments: the segmented muscles segmented the notocord into the nuclei pulposi of the intervertebral discs, these movements caused the vertebral segmentation, the vessel and nerve segmentation and rib segmentation so plainly visible in the thoracic walls. Other movements developed other muscles." The arm of a man makes its first appearance in as simple a way as does the shoot of a plant"[73]. The movements of this arm broke it up into joints; the pull of the muscles caused the bones to thicken. Just as the arm is an offshoot from the trunk, so is the branch a division of the main stem. The limb of the plant divides into other limbs, the upper arm has one bone, the fore-arm two axes, the fingers five. Leaves are often five fingered. There are but five finger-bones yet ten vessels and nerves. The leaf has as many vessels as points. Growth movements developed the plant likewise the animal. "The function precedes the structure" (Guerin). ("Evolution, development; as, the evolution of a flower from the bud, or an animal from an egg," (Webster's Dict).

In "The seeds of Sugar Maple, the embryo fills the whole seed, in which it is nicely packed. There is a stemlet (caulicle) and a pair of long and narrow seed-leaves (cotyledons), doubled up and coiled."[74] "In eggs which have been hardened a spiral arrangement of the white may be observed," "and it is possible to tear off laminae in a spiral direction from left to right, from the broad to the narrow end of the egg"[75]. "The blastoderm may be said to be folded up in the form of the letter S"[76]. "Coincidently with the change of position the whole of the embryo begins to be curved on itself in a slightly spiral manner"[77]. "This curvature of the body becomes still more marked on the fourth day." "In the head very important changes take place. One of these is the cranial flexure"[78]. "The embryo remains excessively curved, so much indeed that the head and

(Continued on page 117)

Drug Eruptions

Especially Fixed, Pemphigoid and Other Unusual Lesions of the Skin and Visible Mucous Membranes, from Ingestion and Parenteral Administration of the Antipyrins, Arsenicals, Bismuthates, Phenolphthaleins, and Other New and Revived Medicinal Agents.

E. WILLIAM ABRAMOWITZ, M.D.,

INSTRUCTOR IN DERMATOLOGY AND SYPHILIS, COLUMBIA UNIVERSITY MEDICAL SCHOOL; ATTENDING DERMATOLOGIST TO THE VANDERBILT CLINIC, DEPARTMENT OF DERMATOLOGY AND SYPHILOLOGY; ADJUNCT DERMATOLOGIST TO GOUVERNEUR HOSPITAL (BELLEVUE AND ALLIED HOSPITALS); ASSOCIATE VISITING DERMATOLOGIST TO THE ZION-ISRAEL HOSPITAL (BROOKLYN).

New York

Ever since Lorry in 1777 first called attention to eruptions produced by drugs, scarcely a single remedy has escaped from being blamed for some cutaneous or other disturbance. Morrow's[1] dissertation on drug eruptions in 1887 is still considered a classic beyond comparison and no further contributions to this subject would have been necessary were it not for the continuous additions and revivals in our medicinal therapy.

Since in all probability any drug if taken over a sufficient period of time, even in minute doses, may prove intolerant in some individual; it is not unexpected that the newer remedies caused a new and unusual set of skin and mucous membrane lesions. It is these new and unusual by-effects on the skin and visible mucous membranes, that form the subject of this paper. Eruptions caused by drugs through external irritation (Dermatitis Venenata) or absorption, are not in the scope of this paper.

There have been various unsatisfactory attempts at classification of the eruptions produced by drugs; the reason for this is that some drugs produce the same type of lesion, while others produce dissimilar forms in different individuals. For purposes of a general description one may recognize some general and special characteristics that these drug lesions possess. The general characteristics are: polymorphism, acute onset, with intensification following continued use and regression of cutaneous eruption after the drug is discontinued. The special characteristics are a constant type of lesion with localization in definite areas, stains and other sequelae. The special and general types of eruption from one or more drugs may sometimes be present together, with subjective sensations of itching and burning and occasional mild or severe and even fatal constitutional disturbances.

Under the microscope, drug lesions when excised show an acute or subacute inflammatory process of the exudative type affecting the terminal circulation. The upper cutis shows an edema of the collagen with dilatation of the lymphatics and with peri-vascular round-cell infiltration. The edema may invade the mid and lower cutis or it may affect the epidermis causing an intercellular edema, vesicles or bullae, as seen in eczema or pemphigus. In the bromide and iodide rash there is an intense inflammatory reaction with the formation of granulation tissue, and an outpouring of polynuclears and eosinophiles that invade the epidermis. In the hemorrhagic type of lesion there is intense engorgement of the smaller blood-vessels that often rupture and leave hemosiderin scattered free or in pigmented cells in the tissue. In silver and bismuth pigmentation the metallic pigment can be seen in the subepidermal connective tissue.

No definite explanation can as yet be advanced why some patients respond abnormally to the action of a drug, while others do not. We still conceal our ignorance with the terms idiosyncrasy or individual susceptibility. Widal and Vallery-Radot have shown that a leucopenia develops followed by a slight leucocytosis (La crise hémoclasique) in quinin and antipyrin idiosyncrasy, and they have been able to desensitize their patients. Labbé and Haguenau[2] have also desensitized their patients to antipyrin. They consider the eruptive phenomenon as colloidoclasic in nature, because the blood shows, immediately after taking the drug, a more marked leucocytosis with or without a preceding leucopenia. O'Mailley and Richey[3] desensitized patients to quinin and obtained positive cutaneous tests. In my experiments with phenolphthalein, I have not succeeded in desensitizing patients or obtaining positive cutaneous tests. Wells[4] is of the opinion that the reactions are probably of an anaphylactoid nature and dependent on capillary thrombosis, agglutination, emboli or capillary toxicity. Milian[5] claims that idiosyncrasy resolves itself into two categories: those due to lesions of the endocrino-sympathetic system, and those due to biotropic phenomena. Animal experiments have failed to prove the existence of true sensitization or allergy.

It is a good rule to follow in the diagnosis of drug eruptions, that when a lesion does not conform to any definite clinical type, an inquiry should be made as to the remedies being used. This requires careful and intelligent questioning, for in addition to taking medicines by the physician's order, the public carry on promiscuously with popular laxatives, headache powders, blood tonics, cough medicines, etc., which thus add to our difficulty in verifying the cause. Elimination of the drug brings about a return to the normal appearance of the skin and mucous membrane and constitutes a cardinal sign in differential diagnosis. Return of the rash with further use of the drug is a valuable sign if it occurs, for a temporary refractoriness or delayed appearance may sometimes develop. Tests for the presence of the drug in the feces, urine, milk, saliva, blood, hair and skin are of great help. It is further necessary to become acquainted with the different clinical appearances of these lesions for there is sometimes nothing distinctive about them and they may be so varied as to deceive the most expert unless they are on the alert for them.

The main indication for treatment is to eliminate the cause and help in the early removal of the drug from the body. One can also try whatever remedies or other means that exist to counteract the abnormal action of the drug. These will be given in detail under the drugs for which it is said to be efficacious.

Local measures are used only to cause relief of local symptoms or sequelae.

Acidum Boricum, Sodii Boras (Sodium Biborate, Borax)

Boric acid and borax when used internally are capable of producing erythematous, morbilliform, papular, vesicular, pustular and scaly eruptions. Evans[6] cites two cases that had taken boric acid internally in doses of ten to twenty grains three times a day, and who developed therefrom, a dermatitis followed by a loss of hair on the scalp and face. Féré[7] observed in epileptics treated with large doses of borax, a seborrhoic-like eczema of the scalp followed by a local and generalized alopecia with a decrease in the secretion of the sebum. Sweitzer[8] finds three deaths reported in the literature. I have seen one patient with an erythemato-scaly dermatitis in patches, that followed boric acid irrigation of the bladder for cystitis. Wile[9] had a similar case from the use of the biborate solution. Cannon[10] has seen an extensive erythemato-vesicular eruption from the intravenous injection of boric acid solution. I have seen considerable irritation of the skin produced when this remedy is used externally, so a certain amount of caution is necessary in prescribing these drugs.

Acidum Salicylicum, Sodii Salicylas, Phenylis Salicylas (Salol), Acidum Acetylsalicylic (Aspirin), Methylis and Ethylis Salicylas

Besides sudamina which these drugs indirectly induce through sweating, erythematous, scarlatiniform, urticarial, vesicular, and petechial rashes are noted. Erosive lesions appear in the mouth or on the glans penis. Aspirin is capable of producing some alarming symptoms. I have seen a child who went into collapse with marked cyanosis of the extremities, from an ordinary dose repeated in four hours. Wise[11] reports some other abnormal manifestations of aspirin, such as tumefaction of the face, nasal, buccal and pharyngeal swelling and great weakness, also conjunctivitis with edema of the eyelids; and even a case of dyshidrotic eczema of the hands. Wise also observed an extensive scarlatiniform rash on the body with a plantar desquamation from salicylic acid, combined with a phenolphthalein rash.

Acriflavine (Diamino-Methyl-Acidinum-Chlorid.), Neutral Acriflavine, Proflavine, Trypaflavine

These acridine dyes obtained from coal tar, were found by Ehrlich in 1912 to possess therapeutic properties against trypanosomiasis. It is now being used as a wound antiseptic. I had occasion to see a patient at the Roosevelt Hospital, who was very ill with a malignant endocarditis, whose treatment consisted of several intravenous injections of a dilute neutral acriflavine solution. The skin of her entire body shortly after the treatment had the appearance as if it were stained with picric acid and showed an erythemato-scaly dermatitis of the extremities.

Antimonii et Potassii Tartras (Tartar Emetic)

An urticarial and pustular eruption is described from the ingestion of this drug. In 1913 the intravenous injection of tartar emetic was introduced by Aragao and Vianna[12] as a specific for granuloma venereum. Others are using this drug and modifications of it for the group of diseases classed as Leischmaniasis. Local pain from infiltration around the vein, acute nephritis, cough with expectoration and pain in the chest, headache, vertigo, nausea, vomiting and diarrhoea, bone pains and brackish taste in the mouth are cited by various observers, but no eruptive phenomena.

Cases of granuloma venereum seem to be on the increase in the United States, and as this remedy produces cutaneous lesions when given by mouth, care should be exercised in watching for intolerance when this agent is given intravenously.

Antipyrina (Analgesin, Phenyl - Dimethyl - Pyrazolone), Antipyrin Salicylate (Salipyrin), Pyramidon (Dimethyl-Amino-Antipyrin), Melubrin (Sodium Salt of Antipyrin-Amedo-Methan Sulfonic Acid), Acetanilid (Antifebrin, Monacetyl Derivative of Phenylamine).

All these drugs may give rise to a morbilliform, scarlatiniform, vesicular or hemorrhagic eruption after long continued dosage. Their action varies with isolated doses, then localized exanthems frequently appear on the skin, and they attack the buccal and other mucous membranes, including the genital and anal region. An angioneurotic edema can also occur. There are several special characteristics about lesions from this group of drugs. One is the development of papules, vesicles or bullae on the visible mucous membranes, or of isolated plaques or nodules (erythema nodosum) on the skin. The other feature is that the eruption is of a "fixed" type or persistent. This term first introduced by Naegeli in connection with arsphenamine eruptions is so-called because the cutaneous plaques after each administration recurr at the site of former lesions, become pigmented and take time to disappear. These fixed eruptions are not uncommon and because they are produced by so few drugs, give us an idea of the nature of the phenomenon and the exact agent responsible.

Goldenberg[13] recently reports a patient that after the use of salipyrin, developed a swollen tongue with numerous round and oval eroded lesions. There were no accompanying skin manifestations.

There are many reports of an "erythema fixe" and a pemphigoid erythema from the use of antipyrin, that involve the glans and prepuce. I have had occasion to observe cases of this type and the patient or the physician invariably thought that the lesion in question was one of the venereal sores or herpes. On the other hand, instead of a single lesion, there may be several plaques of the "fixed" variety scattered over the body. Such an eruption is shown in Figure 1, and followed a single five grain dose of pyramidon.

The lesions in the mouth vary; they may be greyish-white papular lesions that resemble lichen planus or leucoplakia, or bullous lesions that resemble erythema multiforme and pemphigus, or erosive lesions that resemble the mucous patches of syphilis and the other forms of stomatitis.

On discontinuing antipyrin the eruption disappears in time and reappears, but not constantly, when the antipyrin is taken again. This applies to both skin and mouth lesions. Why this recurrence is inconstant is an enigma. Apolant[14] in his study of antipyrin exanthems classifies the idiosyncrasies to this drug as stationary, increasing, diminishing or disappearing in time. Nobl[15] cites a patient in whom the eruption invariably appeared after taking antipyrin but not while he was taking the drug during an at-

tack of the grippe. A similar experience is cited by Apolant in a typhoid patient.

Acetanilid is a common ingredient of popular headache remedies and claims many an habitué. Chemically it does not belong to this group of drugs, but clinically it does, for it produces the same general manifestations on the skin as the other remedies in this group and also affects the mouth. The special characteristic occurs in those accustomed to take the drug for a long time, and consists of a peculiar cyanosis of the lips and buccal mucous membranes and also the face. I know an habitué, who presents such a picture. He is accustomed to take as high as twenty drinks a day of a popular headache "seltzer" which contains acetanilid.

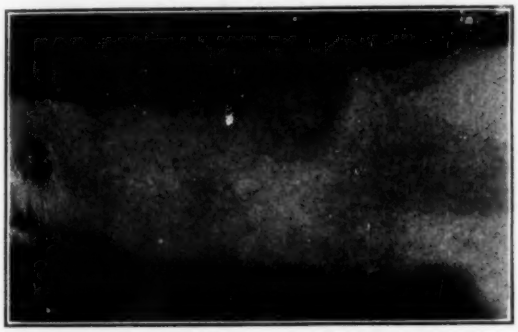


Fig. 1—Fixed Eruption From Dimethylamino-antipyrin

Argenti Nitras, Silver Arsphenamine, Neo-Silver Arsphenamine

The prolonged ingestion or continued application of silver nitrate causes a steel-grey discoloration of the skin known as argyria and requires about three years of continued use to manifest itself. With the introduction of silver-arsphenamines, the question of argyria immediately arose. Fordyce[16] has never seen a case and Parounagian[17] has never encountered any. Lochte[18] has reported a case of argyria from silver arsphenamine which Schlossberg (vide footnote No. 18) disputes as it is through hearsay only, and claims that the percentage of silver in silver arsphenamine is too small (14 per cent.) and the length of administration too short to produce a deposit of silver in the skin. At the thirteenth Congress of the German Dermatological Society held in May, 1923, Habermann[19] reports a case of argyria, verified histologically, from a total dose of 3.2 grams of silver arsphenamine. At the same Congress, Mucha (vide footnote No. 20) also reports two cases of argyria after silver arsphenamine. The report of these cases gives no further details.

Arsenic and the New Arsenicals

Devergie in 1857 first described eruptions from arsenic. Since then every conceivable type of a dermatosis has been attributed to this metal through ingestion, absorption or local irritation.

We see various kinds of erythema, lichenoid eruptions, exfoliating dermatitis, herpes simplex and zoster, pigmentations, keratoses and plantar keratoderma. These patients have some rebellious dermatosis or some debilitating disease, for which they are continuously receiving Asiatic pills, Fowler's solution (Liquor Potassii Arsenitis) Sodium Arsenite internally and Sodium Cacodylate (Sodium Dimethylarsenate) or Enesol (Mercury Salicylarsenate) by injection.

There are also some who develop arsenical eruptions through their occupation, wearing apparel, dust from wall paper, etc., and as occurred in England[20] from the arsenic contamination of beer. Fordyce, Rosen and Meyers[21], find arsenic "normally" in the blood, urine, hair and milk of subjects whose diet is not restricted in the amount of sweets, vegetables and meats, and who are using remedies contaminated with arsenic. Five cases of scleroderma are reported by Ayres[22], as a possible manifestation of chronic arsenic poisoning. The keratoses from arsenic are considered as a precancerous dermatosis as they very often turn into a prickle-cell epithelioma.

The eruptions cited above from ordinary arsenic, very soon appeared after the various brands of the arsphenamines were introduced. In addition some new by-affects are noted such as: the "fixed" type resembling antipyrin or phenolphthalein rash, a lichen that is indistinguishable from true lichen planus, a foliaceous type of pemphigus, a hemorrhagic purpura type, an angioneurotic edema, a leukomelanoderma, jaundice, Raynaud's syndrome, stomatitis, and an aplastic anemia. As is the case with other remedies a mild or a fatal eruption may occur after a single dose, after several doses or after several courses.

Frazer[23] reports a fatal case of dermatitis following a single dose of novarsenobillon and therefore advocates small doses. The report of the Salvarsan Commission of the General Medical Society of Cologne[24] shows forty-eight cases of injury to the skin with five deaths out of a total of 225,780 injections of all types of arsphenamine. About once in five thousand injections, therefore, does an insult to the skin occur. In eleven of these cases with two deaths, mercury has also been used.

The eruptions provoked by the arsphenamines are classed by Stühmer[25] as follows: acute, subacute and chronic. The acute eruptions appear immediately to within a few hours and are urticarial, erythematous or fixed in type and of a vasotoxic nature. Rashes that appear six to twelve days later are classed by him as subacute; they occur after the first injection even though it manifests itself during the second or third treatment. The rashes are like those that appear in serum sickness and have the same temperature curve, time interval and subsequent freedom of further symptons when treatment is resumed. In the chronic arsphenamine dermatitis there is an early eruption that appears right after a course of treatment and a late form that occurs from several weeks to three months after a course. These chronic eruptions begin as follicular, urticarial or erythematous rashes on the extensor surfaces and wind up as a dermatitis or erythroderma. If it continues, desquamation may set in with subsequent hyperkeratosis, hair and nail changes, pyoderma, plaques of weeping dermatitis, high fever and even death.

It was noted that some syphilitic patients improved and that their Wasserman tests became negative after a severe dermatitis, so it was thought that the skin developed a defense reaction that protected the internal organs from disease (esophylaxis of Hoffman). Others had a contrary experience; Stümpke[26] reported eleven cases with arsphenamine dermatitis of whom, seven had syphilis recidives.

Many of the untoward acute symptoms, especially the nitritoid crises following arsphenamine, can be avoided by the preliminary subcutaneous injection of 1 cc. of 1-1000 adrenalin solution, as advocated by Milian, who also reinforces it by a very dilute minute dose of adrenalin intravenously. Atropin injections are used by Stokes at the Mayo clinic as an additional guard aganst untoward symptoms. Both these remedies are to be used also for the treatment of the symptoms after they de-

velop. McDonagh's contramine (diethyl-ammonium diethyl-dithio carbamate) and the sodium hyposulphite solution recommended by McBride and Dennie[27], when used intravenously hasten recovery from the chronic erythemato-scaly arsphenamine dermatoses. McBride and Dennie also advocate the use of these sulphur preparations in poisoning from other metals such as mercury, bismuth, lead, zinc and copper, as they say it converts all these toxic metals into the non-toxic insoluble sulphids. Voegtlin and his co-workers[28] show that the arsenobenzenes affect the SH group in protoplasm causing a reduction below physiological requirements. It is therefore possible that the value of sulphur therapy in metallic poisoning depends on the extra supply of SH compounds furnished, thus allowing the protoplasm to escape further injury. Hence the recent sulpharsphenamine. Afenil, a molecular compound of calcium chloride and urea, is also recommended as a means of preventing severe arsphenamine reactions. Ten cc. of a ten per cent. solution is given intravenously.

Post-arsphenamine icterus and post-arsphenamine dermatoses of the chronic type are strong contra-indications against the further use of this remedy, except in extraordinary circumstances.

Barbital (Veronal, Diethyl-Barbituric Acid, Diethyl Malonyl Urea); Luminal (Phenobarbital, Phenyl-Ethyl-Malonyl-Urea); Luminal Sodium, Barbital Sodium (Veronal Sodium, Medinal) Codeonal (Codein-Barbital); Bromural (Monobrom-Isovaleryl-Urea); Adalin (Bromid-Ethyl-Acetyl-Carbamid); Sulphonal (Diethyl-Sulphone-Methyl-Methane); Trional (Diethyl Sulphone-Methyl-Ethyl-Methane).

All these synthetic drugs are used as hypnotics and nerve sedatives, in epilepsy, chorea and other neuroses. Most of them were introduced in the past few years and their special and general characteristics are as yet not well known. Barbital produces morbilliform, scarlatiniform, blebs and "fixed" eruptions. Pollitzer has noted a barbital rash which was of a dark morbilliform type and associated with red blotches on the cheeks and pharyngeal mucosa, with erosions of the mouth an anus. Weitz describes a morbilliform, partly confluent itchy eruption and red swelling of the face with fever in a patient who had been taking doses of medinal of unknown quantity. She died two days after the appearance of the rash.

Codeonal has been known to produce severely itchy bluish-red plaques on the face and chest, extending over the entire body and accompanied by fever. Adalin is known to cause; pruritis, urticaria, bromid acne, and chronic papular eczematoid eruptions, or irregular erythematous plaques like erythema multiforme. Petechia, telangiectases and pigmentations are also noted. Elderly people are very susceptible. Bromural produces a pustular and tuberose dermatitis as seen in the bromid eruptions.

Luminal ingestion causes a group of lesions closely resembling the various exanthemata, even injecting the conjunctiva and buccal muccous membrane and causing a desquamation. In addition, urticarial, eczematous, fixed and other unclassified forms of dermatitis are reported. The mouth lesions of luminal very closely resemble those of antipyrin and phenolphthalein. Chargin[29] reports a pemphigoid eruption of the tongue, cheeks and lips with no cutaneous rash, in an epileptic girl who had been taking luminal. I had occasion to see at the Vanderbilt clinic, in the service of Prof. Fordyce, a patient that had taken luminal for his insomnia and very soon developed a chancroid-like lesion on the glans penis. This lesion rapidly disappeared after suppression of the remedy. All laboratory tests for syphilis and chancroid were negative.

The action of these drugs is capricious and fatalities may occur. Dubois[30] reports a fatal case of erythroderma from luminal. The patient took two tablets of one-half gram each, every two days until eight tablets were taken. I have known a death from luminal, the patient taking an overdose while intoxicated. The Department of Health of New York City has acted wisely in stopping the sale at retail of this group of drugs.

Bismuth

The symptoms of bismuth poisoning are pigmentations of the gums, ulcerative stomatitis, gastro-enteritis, dyspnoea, delirium and albuminuria. These symptoms rarely occur except from over-dosage. Balzer in 1889, discontinued his experimental work on syphilis with bismuth as he found the drug too poisonous to be useful. In 1916, Robert and Sauton found that bismuth is destructive to spirochaetae gallinarum, but their experiments were interrupted by the war. It remained for Sazerac and Levaditi in 1921 to perfect a suitable bismuth preparation (sodium and potassium tarto-bismuthate) that proves of use in the treatment of syphilis. There are now several preparations on the market and it seems to be the opinion that its therapeutic efficiency against syphilis, is between arsphenamine and mercury. These bismuth preparations with a bismuth content that varies from thirty to ninety per cent., are used as a ten to twenty per cent. suspension in oil or other neutral medium and are given intramuscularly only in doses of 1 to 2 cc., every four to five days. Ten to fifteen injections constitute a course of treatment, after that a rest of two months is prescribed and the courses repeated as indications permit.

Although not long in use the French and German literature are already citing cases of its abnormal action. Pinard and Marassi[31] reports a case of an exfoliating erythroderma with stomatitis after the first injection of the second course of bismuth hydroxide. Hudelo[32] reports a case of bismuth stomatitis with cutaneous erythroderma and mentions a case of Gastou and Pontoisseau, that received three intravenous injections of colloidal bismuth in five days, which was followed by a confluent and generalized papulo-squamous erythema. Hudelo cites another case which Lortat-Jacob and Roberti presented, at the Paris Congress held in June, 1922. The patient had never received any arsenic and developed an erythema scarlatiniforme from bismuth injections. At the same session Levy-Frankel reports a case of scarlatiniform erythema with purpura after two injections of the iodobismuthate of quinine. Galliot[33] reports bismuth urticarial eruptions in two women and a scarlatiniform eruption on an infant's buttock on the side of the injection. Lepinay[34] reports a man that received neo-arsphenamine and grey oil without any reaction and two months later was given one injection of the iodobismuthate of quinine. Large urticarial plaques with pruritis of the back, fever and headache occurred the next day. Nicolas[35] reports a bismuth lichenoid eruption and a localized eczema, also a rubeoliform and discreet purpura of the extremities that Fournier and Guenot mention. Lehner[36] reports a tabetic that developed a toxic ery-

(Continued on page 118)

Radium Emanation

WILLIAM L. HARRIS, M. D.
SURGEON TO ST. JOSEPH'S HOSPITAL,
Providence, R. I.

With a full recognition of the danger of forming premature conclusions with reference to a subject of such far reaching importance as this which I shall consider in these relatively brief statements, I cannot but feel that my observations in this most useful, but unfortunately, little-known field of the employment of radium as a curative agent, may prove the incentive along careful lines, for its use by those members of the profession who as yet have had no occasion for using it.

The results of the use of radium in malignant diseases are to-day so well realized by many leaders in the medical profession, that the operator who contents himself simply with surgical attacks upon malignant growths is in danger of being considered merely a pathological mechanic. Heretofore there may have been a sufficient excuse for the non-employment of this most valuable adjunct, more particularly, perhaps, because the operator faced a terra incognita; because the element was so sparsely distributed throughout the civilized world; and because its cost was almost prohibitively high. Accumulated experience of a very positive character has obviated the first of these objections, and a recent find of pitch-blend rich in radium bearing ore, uncovered in the Belgian Congo, has done much to mitigate the latter, by reducing the price of the element from $120,000 per gram to $75,000 per gram.

A further extension of the use of radium where the element of cost must be considered seriously, is now permitted through the marvelous developments made possible by the experiments of Professor Duane by means of his ingenious apparatus for the collection of radium emanation in minute sections of capillary glass tubes. Such minute tubes or "seeds," as they are called, each containing from one-half to two-thirds of a millcure, may be implanted into any suspicious tissue, provided they be placed one centimeter apart, without fear of their producing any objectionable results. Such procedure has proved beneficial by most rigid tests in such institutions as the Memorial Hospital of New York City, and the Huntington Memorial Hospital in Boston. In the latter institution where the splendidly comprehensive work of the Harvard Cancer Commission is being conducted, Dr. Duane, who is Professor of Bio-physics at Harvard University, co-operate with the surgical staff in preparing radium emanation.

It is most gratifying today to be able to assure some of our cancer patients that a cure is possible in cases in which in years past we could only hope to postpone the inevitable end. In other cases, in which the matter of cure is not to be hoped for, it is gratifying, too, to realize the benefits following the employment of radium in checking hemmorrhage and toxic absorption, and the consequent marked improvement in the sufferer's general condition.

Dr. Duane has made it possible then for the physician or surgeon who is not the possessor of radium element to be supplied with any desired amount of radium emanation contained in any given number of seeds, together with ingeniously devised instruments for their implantation at whatever depth is desired in the tissues. It is merely a question of shipping the "seeds" overcharged to a certain definite degree in order that the physician may obtain his required quota of radium emanation, since the dispersion of the element can be mathematically calculated with reference to time of shipment and of arrival by referring to properly prepared charts. In addition larger, calculated quantities of radium emanation can be forwarded with instructions which will make possible any desired bombardment of pathological tissue. It is well perhaps to warn against an indiscriminate use of this powerful agent because of the sufferings entailed when patients are subjected to over-radiation. The radium burn thus produced is a most painful lesion, and when produced is always attributable to overdosage or improper screening.

Woman perhaps in particular owes an everlasting debt of gratitude to Madame Curie co-discoverer of radium which has done incalculable service in staying the swift course of the grim reaper in those cases of cancer to which woman alone is victim. Even though the final outcome of some of these cancers will remain unconquered, if such be the fact, the mere checking of the advance of this loathsome disease with its concomitant devitalizing influences has heralded the name of Curie throughout the medical world.

It is a consummation devoutly to be wished that all hospitals worthy of their mission shall become acquainted with the efficacy of radium emanation and speedily recognize its merits. It is also very necessary to educate the medical profession to their appreciation. Let not those who are without the pale of such appreciation lay complacent unction to their souls and smugly state with a shrug of the shoulders that radium is the "happy hunting ground" of some of us who would appear ultra modern.

Let not our hospitals rest tranquil in the feeling that they are the last word in standardization and equipment, while still lacking even that small quota of radium which would make possible what is for the present the adequate treatment of their cases of cancer, constituting, as they do, at least 2 per cent. of the cases admitted. Nor will the use of radium emanation be confined to these cancer cases alone even though for them its purchase and use would be adequately justified, for it has firmly established itself as a most essential factor in the treatment of other lesions that may be fully as malignant as cancer itself, for instance, tuberculosis in various parts of the body, uterine fibroids, uterine hemorrhages, leukæmia, Hodgkin's disease, and in many pathological conditions in which a diminution of the blood supply and a concomitant fibrosis will be of benefit.

Some of the happiest and most striking developments are observed when, for example, epitheliomata, especially those of the face, disappear as though touched by a magic wand, and tuberculous glands recognized as such before suppurative changes ensue so promptly disappear. The paradox of the disappearance of keloids, a fibrous phenomenon in themselves, melting away before radium is a common experience, despite the fact that the radium owes so much of its efficiency to its power of producing replacement fibrosis.

I would be remiss, were I to close this brief thought ramble without a word of appreciation for one who has enriched our medical practice with the marvelous possibilities of radium emanation. Dr. Joseph Muir recognizing the prohibitive cost of radium itself unselfishly has made it possible to place radium emanation in the armamentarium of every physician, and in any quantity desired, at a moderate cost. He is the pioneer in this great and notable work.

Medical Jurisprudence in Relation to Pure Food Laws

DANIEL R. FORBES, ESQ.,
OF THE DISTRICT OF COLUMBIA BAR.
Washington, D. C.

Most of us think of pure food regulation as beginning with the enactment of the present national Food and Drugs Act of June 30, 1906. Effective regulation in this country does indeed start with that statute, but municipal law designed to insure purity of foodstuffs and freedom from fraud is as old as the Hebraic religious injunctions.

The early measures were for the most part statutes aganst fraud in the sale of foods. It is written that about the time of Confucius, a mandarin who had no political connections with the Farm Bloc, limited the price for which pork could be sold.

Our first record of an adulterator is in Chinese characters and says that the pig raisers in the community averaged up fairly well by filling the porkers' carcasses with water before weighing.

A poultry dealer not very far from New York is today answering the charge of watering cold storage chicken by means of a syringe, the water freezing into a weighty ball of ice, showing that the Chinese idea has survived.

Purity, or freedom from deleterious substances seems to have been overlooked by the ancients. In fact, until the art of preparing foods in the kitchen became commercialized and the complications of modern life demanded the food factory, little attention was given to either the food value or healthfulness of foodstuffs.

The eighties and early nineties saw a new interest in food regulation by statute. Many of the laws passed in this period were special measures to favor a particular firm or trade by prohibiting what competitors were doing. The dairy interests were especially active and successful at this time, and oleomargarine became cursed by act of Congress long before science knew what it was all about, or before a white rat had been starved or fattened. One state passed a law requiring oleomargarine to be colored black.

Statutes were passed prohibiting the sale of alum baking powder, despite the fact that alum was not used in baking powder, and when such laws were not obtainable the manufacturers who had an axe to grind lobbied through statutes requiring his competitors to label their powders "alum" whether it was alum or not. Such special and often selfish legislation was accompanied, however, by measures intended to protect the public health against unwholesome foodstuffs. It is possible that the noise made by contending forces over special laws directed public attention to the need for regulation of the country's food supply. Certain local champions of the public health arose and complete general laws began to take form. Of course, there was little, if any, uniformity in these statutes, but they did have a common purpose—the prohibition of unwholesome and deleterious foods, and protection against deceit.

A review of the agitation antedating the passage of these statutes discovers a number of upstanding, unselfish men who dared urge the public weal against the power of selfish, shortsighted business men. All food manufacturrs were not opposed to the reform, but few understood the real meaning of the movement. The Government had not then entered business as it has today, and its was natural to suspect and to resist governmental interference. Few of the manufacturers, however much as they deplored the conditions in their industry, relished control by the reformers from the ranks of the medical and chemical profession. The extent of this opposition to pure food law enactment is surprising to the reader of today. But what is more surprising is the complete reversal of attitude to be found among those same opponents to food regulation. But this is deserving of later reference.

The enactment of the federal Food and Drugs Act was a logical result of the agitation of the time, and a necessary step towards control of the traffic. It is exceedingly interesting to turn to the report of the committee of Congress having charge of the Bill. For the purpose of this discussion it is especially illuminating.

Quoting from different parts of the report we find:

"The purpose of the pending measure is not to compel people to consume particular kinds of foods. It is not to compel man to produce particular kinds or grades of food. One of the principal objects of the bill is to prohibit in the manufacture of foods intended for interstate commerce the addition of foreign substances poisonous or delterious to health.

"The question whether certain substances are poisonous or deleterious to health the bill does not undertake to determine, but leaves that to the determination of the Secretary of Agriculture under the guidance of the proper disinterested scientific authorities, after most careful study, examination, experiment and thorough search."

Regarding standards and definition of foods:

"We realize that it is not possible for Congress to determine the wholesomeness or unwholesomeness of each food product, or to fix by legisiative act the standard which shall be accepted as complying with well-known names of food articles. We realize that in the end the determination of the standard of a food article under a given name may be one to be settled by the courts. It is, however, essential to the success and operation of any pure-food measure that standards of food products shall be arrived at for the guidance of the officials charged with the administration of the law and often for the information of the courts.

"One of the principal objects of a national pure-food law is to obtain uniformity of food standards among the States, which are supreme within their own borders. The intention of the makers of the Constitution and the founders of the Republic that commerce between the States should be free and unhampered has been largely nullified as to food products by the varying requirements as to standards and labels in different States. In one State one standard may be required for a named article and in the adjoining State a different standard fixed; and where the same standard is agreed upon in a group of States for precisely the same article different labels may be required in each of them, so that the producer or manufacturer is compelled to not only have complete knowledge of the various State laws, but under penalty is required to carefully see to it that a package of goods intended to meet the requirements of one State shall not by error be sent into another State."

The House Committee reported what it termed a "perfected bill" with recommendation of passage. This provided:

"That it shall be the duty of the Secretary of Agriculture to fix standards of food products when advisable for the guidance of the officials charged with the administration of food laws and for the information of the courts, and to determine the

*Presented before the Society of Medical Jurisprudence, November 12, 1923, at the New York Academy of Medicine.

wholesomeness or unwholesomeness of preservatives and other substances which are or may be added to foods; and to aid him in reaching just decisions in such matters he is authorized to call upon the committee on food standards of the Association of Official Agricultural Chemists, and the committee of standards of the Association of State Dairy and Food departments, and such other experts as he may deem necessary."

Thus you see the committee in charge of the bill, after full hearings and investigation, anticipated the triple necessity of—

1. A board of disinterested scientific authorities to determine the wholesomeness of food ingredients.
2. The establishment of standards and definitions, and
3. Uniformity of state food and drug laws.

Did Congress accept these recommendations? It did not. It rejected those parts of the committee bill which provided for an impartial scientific board to settle controversies as to wholesomeness of food ingredients and the establishment of standards and definitions. One of the fathers of the bill which later passed, when defending it against attack on the floor, assured his colleagues that it gave no authority to fix standards for food, and that if there was anything the bill did not do, it was to provide for standards. Manufacturers were generally opposed to standards and definitions, and their opposition was reflected in the debates.

Now let us see if the committee report did not accurately anticipate the problems later encountered in the administration of the law.

Without intending the slightest disparagement of the purposes of the first administrators of the law it must be said that the need for disinterested and impartial scientific review of the findings of the Department of Agriculture was soon evidenced. The official, who after heroically championing a police measure, is charged with its enforcement, is hardly human if some of the prejudices and assumptions employed in the heat of debate do not color his administrative policy.

The first controversy as to deleterious ingredients in foods involved the chemical preservatives. Benzoate of soda was condemned by the Bureau of Chemistry as unwholesome, after a Bureau investigation. Upon appeal to President Roosevelt the food manufacturers secured the appointment of the Remsen Referee Board, just such a board of impartial consulting scientists as had been recommended by the congressional committee. The scientific standing of the Referee Board is of course well known. After exhaustive experimentation it concluded that benzoate of soda, in the small amounts employed as a preservative, is not deleterious or poisonous and is not injurious to health.

Later the Referee Board, after exhaustive research found that aluminum in baking powder was not unwholesome. It found copper salts deleterious to health.

The importance of these determinations can hardly be exaggerated. It is important to the welfare of the public health that deleterious foodstuffs be kept out of commerce. It is likewise important that established industries be protected against fads and assumptions that cannot stand the searchlight of true science. The Department of Agriculture is well equipped to deal with chemical investigations, but at no time in its history has it contained the personnel of investigators whose findings on matters of physiological chemistry would command the respect of the whole scientific world. It is in fact, not its function.

Furthermore, I submit that where large questions of public health are involved in scientific controversy, every effort should be made to remove any doubt as to partisan interest. I have yet to find an enorfcement official who did not have a decided opinion in favor of his cause. He would be worthless as an official if it were otherwise.

As a lawyer I might be expected to favor judicial determination of such questions after exhaustive testimony of experts. My experience at the bar in a somewhat highly specialized practice persuades me to the contrary.

First, it must not be a matter of opinion but a matter of *FACTS*,—facts in the form of clinical and laboratory results and reactions which can be assembled and reported *as* facts. The judge on the bench and the jury in the box is capable of reaching a valid opinion upon a collection of facts within their experience. The tribunal capable of determining from purely scientific facts, the wholesomeness of ingredients of foods and the effect upon the public health, in my opinion, should be a disinterested group of recognized scientific authorities.

Certainly public and scientific confidence lies in the the latter method. For instance, the chemical bleaching of flour was condemned by the Bureau of Chemistry and resort was made to the courts. Expert witnesses appeared on both sides in about equal division. What difference does it make what decision was reached. You who are lawyers and you who are in the sciences would not accept with final confidence the judgment of any court or jury in the face of a real conflict of opinion evidence. The findings of the Remsen Referee Board have been accepted generally as authoritative determinations, and in the absence of unusual development in scientific learning must of necessity be regarded as final determinations. The bleached flour decision in the courts leaves the door open to constant bickerings. I want to convey the thought that in large questions of public health, where individual investigators, be they private or official, differ as to the wholesomeness of the public's food, the deciding tribunal should be a consulting Board, like the Remsen Referee Board, impartial, able, and possessing official standing.

I am not depreciating the value of scientific opinion evidence in general litigation. We are wholly dependent upon it in certain classes of contests, and where the exact rather than the speculative sciences are concerned, the truth is always available. I do think however that there is a bit too much expression of scientific opinion from the witness stand without laboratory or clinical labor behind it.

So much for finding the truth about our foods. What of the manufacturer of the food. Has he developed since the passage of the Federal law?

One of the moving considerations for the enactment of a Federal Food Law was uniformity in state laws. Has that been brought about? Most certainly not. Here again we see the danger and the unfairness of special statutes as opposed to general statutes. The federal law defines adulteration and misbranding in general terms and deals in special prohibitions to an extremely limited extent.

Many of the state laws, either from overenthusiasm on the part of the state officials, or by reason of competitive lobbies, or upon occasion, to assist local manufacturers at the expense of those without the state, pro-

hibit this or require that in connection with the entire lists of food products. What is the result? With forty-eight state laws to be obeyed, the manufacturer enjoying national distribution certainly faces a problem. Fruits preserved with sulphur dioxide are legal and unadulterated in every state but one. There must be something peculiar in that imaginary line that geographically bounds the state of Pennsylvania, for we find sulphur is no longer innocuous but has suddenly become deleterious.

Benzoats of soda was legislated out of Wisconsin years ago and the old law is still on the books. The Federal Prohibition Act requires apple cider to be preserved, and benzoate is recognized under the regulations. The cider maker in Wisconsin is damned by one law if he does, and damned by the other if he does not. Wisconsin is rich in special and peculiar statutes and special labels are generally required to do business there. A comparison of the 48 state laws will show you that what is honest in New York is dishonest in Kansas; what is wholesome in Boston is classified with the poisonous in North Dakota. New special laws are added each year to further confound and harrass the food manufacturer, who merely wants the merry game to settle down to something definite and uniform.

The Congressional Committee of 1906 believed that uniformity would be assisted by the promulgation of standards. I am convinced that the cause of uniformity can be advanced by the pronouncement of standards for foods providing those standards go with substantially the force and effect of state law.

The Department of Agriculture has announced definitions or standards for foods, but those definitions and standards are merely advisory and not in themselves binding upon the industries. The Federal Food and Drug Act, in recognition of the importance of standardized composition of drugs, specifically provided that the United States Pharmacopoeia should be the measuring stick for both purity, strength and branding of drugs.

There is authority behind such a standard; there is prestige behind such a standard; such a standard, modified from time to time according to the development of science and knowledge, is arrived at by orderly and established procedure, and when pronounced, is received with confidence and obedience, to the benefit of public and manufacturer alike. While not exactly parallel, why can't we define and standardize our manufactured food products in a somewhat similar way to the end that a definition and standard for food shall be authoritative and binding and constitute a clear and unclouded rule for the guidance of both manufacturer and consumer.

At the present time advisory standards and definitions are issued by a joint committee on definitions and standards, a semi-official body composed of three representatives from the Bureau of Chemistry, three from the Association of Dairy and Food Officials and three from the Association of Official Agricultural Chemists. These men, able and sincere without question, serve without pay. They are very busy men, being occupied in their important official duties as state chemists, etc., and are able to devote but a small portion of their time to the thankless public duty of formulating advisory standards for the Secretary of Agriculture. The food industries and the public should be appreciative of the fine work they have done under such handicapping conditions. But the fact remains that there is much to do, they have neither the time nor the facilities to accomplish what they want to—and should—and when they have issued a definition and standard there is always a question as to its authority and binding effects which only long and tedious litigation can answer.

Let me cite you an example. In 1918 The National Preservers Association petitioned this committee for standards and definitions for jams and jellies. There was much misbranding extant in that industry and new products such as Pectin had entered the field, and lacked official status. The Association, of which I am counsel, desired something official and definite to control both manufacture and labeling in order to better conditions in the trade. We are still waiting for these official standards and definitions. It is not the fault of the Committee—they have had a big calendar of things to do, little time to devote to this charity work, and less money. But the manufacturers are still waiting, and in waiting in uncertainty, tapered off into worse misbranding habits than those which had first suggested the need of standards.

During the past six months the Preservers Association has been conducting a Vigilance Committee campaign and cleaning house among its members, but we cannot tell our members what the definition of a particular type of jam is going to be according to the Joint Committee standards yet in formulation, and furthermore, we have no assurance that these standards, when issued will be binding upon some of our negligent or dishonest brethren with whom we must compete. I want you to note here that while in 1906 the food manufacturer generally opposed official definitions and standards, they are now for the most part petitioning the Federal authorities for a definite and binding standardization, which will improve their products and promote fair competition. It is a pleasing demonstration of the development of right thinking, and a growing sense of responsibility for the quality and wholesomeness of the public's food. Further examples might be interesting:

The peanut butter manufacturers believe that peanut butter should be made only from No. 1 grade of peanuts. They are seeking to improve their product. We are now engaged in working for a definition and standard for this product which will *improve* it—just the reverse of the old order, not working to cheapen it at the expense of the public.

There are large quantities of low grade self-rising flours upon the southern market which according to experiments which have been made, contain in many cases excessive alkali residue and are deficient in leavening strength. These should be regulated by fair standards and definitions in the interests of public health and the public pocket book. Let me here frankly state that in this particular case we are representing competitive interests who feel they are facing unfair competition inasmuch as their products which compete with self rising flour have already been standardized.

There are a score of other products that should be defined and standardized, and when defined and standardized, the definition should be so arrived at as to deserve the utmost confidence of all, and, subject to regulated appeal, should have the authority behind it to make it readily enforceable.

I can in a few words show you what that means. Cocoa beans from West Africa were coming over here with a high content of mouldy and wormy beans. There was no standard or grade in the trade establishing a tolerance for any percentage of wormy and mouldy beans, and American importers were thus handicapped in making rejections.

The Food law gives the Secretary of Agriculture special powers relative to the admission of imported food products. Having the necessary authority to enforce a standard, the Department defined a grade which would exclude cocoa beans having more than 15 per cent of

mouldy or wormy beans. What was the effect? This industry is enthusiastic—foreign contracts have been modified to comply with this standard and most certainly the public is benefited. But authority and power to enforce was requisite to accomplish this.

Then why not provide it? In my opinion there should be a board or committee on food standards established as a permanent organization, to function as an advisory board very much as did the Remsen Referee Board. This committee should be composed of a selected representative of the Bureau of Chemistry, a representative of the Association of Dairy and Food Officials, a representative of the public in the person of a woman trained in home economics, a representative of the Department's legal staff and as a fifth member, a representative of the food packing industries, to be selected by the joint action of organized food manufacturing trade associations.

These members should be fairly compensated and adequate appropriation made for investigation and research facilities.

There has always been a question as to the validity of delegating powers smacking of the legislative to executive officers, but there appear to me several ways in which the findings of such a committee could be made as authoritative and binding as the definitions promulgated by the authors of the United States Pharmacopoeia.

That we need authoritative and enforceable standards and definitions for foods there can be no doubt. That we should have an impartial and qualified personnel to determine standards and definitions I think will be admitted. I have always found that the big part of the lawyers' job is to *find the facts*. The food manufacturer and the public are most certainly entitled to the best in scientific ability when questions of diet, of wholesomeness of our food is concerned. And when the facts have been scientifically determined, and the decision made, both for the protection of the public welfare and the manufacturer's interests, such determinations should be as authoritative and as informative to consumer and producer as the standards which guarantee purity and efficiency in drugs.

Discussion.

Mr. Ole Salthe, Director of the Bureau of Food and Drugs, Department of Health, City of New York:

I am more or less in accordance with what the speaker said concerning the necessity of universal standards. In the City of New York we follow the Federal Government standards, and where they have none we make standards for ourselves. The Board of Health has power to make standards for milk, cream, ice cream and bleached flour. In doing so we run into the difficulty of coming in contact with those of other states and authorities.

In this city we may reject a milk supply as being unsatisfactory. The milk when coming to the terminal may be rejected by our men, yet it may be sold in Jersey City as being satisfactory. If our men go to Jersey City to prevent this milk being reshipped to New York they are arrested. So you see how little co-operation there is.

The same is true of ice cream. We have adopted a standard for ice cream. Prior to that it was sold with as low as 1 per cent butter fat. We conducted an investigation of conditions existing in the trade and arrived at a standard which we thought would best be fitted for New York City, after consulting with the manufacturer, both large and small. After considerable discussion we arrived at the standard now on our books. In its enforcement we find, with few exceptions, very little opposition. In the last three months we have tested three or four hundred samples and only five or six fell below the standard. Dealers have come round, who were first opposed, and have asked us to raise the standard. So you see how this question of standard is approved as far as the dealers are concerned.

We have 90,000 food establishments in this city and we have regulations which control their sanitary conditions and the quality of the food they handle. Out of this 90,000 establishments in the last year we found it necessary to submit to the courts something like 18,000 prosecutions of instances of law violations. Before we institute an action in court we warn the dealer and get compliance with the regulations by education. With the milk regulations the producer and distributor were consulted and they gave approval to the general regulations. Despite those facts we found it necessary in 18,000 instances to bring cases to the courts for determination.

The most difficult problem we have is not the deleterious substances in food. We are in an age of inferior substitutes. It is our contention that such foods should be sold for what they are. Some of them are not unhealthy but they should not be sold as being the same as a superior food. The question of a necessity for standards is very vital so far as it affects the food supply of this city. First we should have minimum standards that would be uniform, not only with the states but with the Federal Government.

Walter Jeffreys Carlin, Esq.: I date back to the time when the manufacturers were not so fond of standards as Mr. Forbes seems to have found them. One of the reasons was because the individuals in charge of the formation of standard laws had peculiar notions of what the standards should be. Mr. Salthe referred to the subject of ice cream. I might say that he got none of his notions concerning it from the food law official who testified that ice cream should be prohibited, first because it contained sugar which was harmful, second because it was cold and that was harmful to the stomach. With that type of individual in charge it is easy to see why the manufacturers were opposed to standards. When the food law was passed it was believed that before the manufacturers could be prosecuted for violations they would be entitled to a hearing, but there have been prosecutions since 1909 without any such hearings at all.

I am in accord with the speaker on the question of forbidding the sale of any deleterious food. But even the Remsen Board found highly scientific men to disagree with them on the question of what was and what was not deleterious. But if you attempt to say that any food is up to the standard, that is different. I went through the battle of what was mince meat. It sounds very easy. I can remember going to Milwaukee, and actually being paid for it, to discuss what is beer.

The question of what is a pure milk, coming down to something vital to us all, has been fought out in this country, in Canada and in other places and will be fought so long as we have farmer organizations and officials with differing ideas. We were going to standardize milk on the basis of its bacterial count. The same with ice cream. I hate to think how many thousand dollars it would cost the manufacturers of various foods to test out such standards; the manufacturers of ice cream to demonstrate that the Bureau of Chemistry did not know what it was talking about spent many thousands of dollars. Two samples of milk taken from the same bottle vary in the bacterial count. If you are going to discuss standards you must take in the substitutions. We must not standardize down. If you make a certain brand the standard the manufacturers will come down as close to it as possible.

You cannot go into two states and find the same definition of ice cream. There are some that say it consists of cream only sweetened and frozen and that is the Government standard or definition today. In the City of New York or State of Vermont it is different. When 48 states cannot agree, when various cities cannot agree in regard to the standardization of even one food product and have not agreed since 1906, how can you expect that Congress shall establish standards? The speaker's proposition stands nearer to common sense. Think, however, that there is a fallacy in most standards. There is a habit of trying to standardize it on one of its ingredients instead of all of them.

For example, it can be demonstrated that in two 8 per cent dishes of ice cream one man will get twice as much butter fat in his ice cream. This is due to the swell as ice cream consists partly of air, and you can take two portions of ice cream with the same butter fat content and the second individual will get twice as much as the first. In ice cream also is the milk solids, not fat, are seldom standardized. So one might go on.

To go back to mince meat; they were going to standardize it on the basis of its meat content, forgetting the other things that enter into mince meat and the fact that some mince meat is made without meat. I will say that while I feel the speaker of the evening is very earnest in his efforts to demonstrate successive standards and that the manufacturers are urging the question of standards, I do not believe it is their sincere belief that there should be standards but because they have been so harrassed by 48 sets of standards that they will welcome a condition that will permit them to say: "Our product is now legal and if we sell it across the state line we will not be prosecuted."

Dr. Ernest Elsworth Smith: There are one or two thoughts that occur to me in connection with this interesting presentation.

The first is the fact that I have in mind in connection with the date of the publishing of the first edition of the United States Pharmacopoeia. We are now in the ninth edition and the first edition was published in 1820, so we have here an explanation of why drugs are so well standardized and organized for standardization. They are 100 years old and the matter of pure food standardization is only a few years old. So we are comparing the adult with the child in swaddling clothes.

Another point I would like to emphasize: We have heard there are two qualities that are to be used as the basis of judgment in standardizing foods; the first is healthfulness and the second is honesty. I would like to add another and that is decency. It is very hard to prove that some foods are unhealthy, yet we know they are not proper to put before the public for consumption. You can prove that they do not come up to the proper standards of decency. So I would require, not only healthful and honest but decent in reference to the food produced and the character of the production when presented to the public.

In connection with the use of substitutes, we are learning more and more about the hidden value of food. Things that were never suspected are coming to light. It is not alone necessary that a food should have a fat and caloric value, but it should have the quality associated with natural food for which it is eaten and the purchaser should not be misled into believing he has the natural food when he is presented with a substitute.

Take, for example, the production of rickets in early life. Children who partake of artificial food in the first months and years of life require, in order that they should be protected from the development of rickets, at least four factors that enter into their food supply; 1, the amount shall be adequate; 2, there shall be calcium and phosphorus in adequate amount, and the calcium and phosphorus shall be properly balanced. The third factor is the mysterious thing. There is something which causes the calcium to be deposited in the bone and without this quality the calcium and phosphorus would not be deposited in the bone in the proper way and deposits will be produced which, while not exactly rickets, if the food does not contain this it is unhealthful. The fourth factor does not have to do with the food but is of interest because we now know that in the prevention of rickets the radiant energy of life is a factor.

Rickets occur particularly in this climate among colored and Italian children. One of the reasons for that, and the particular one, is because of the fact that their skin is pigmented and adapted to exposure to a large supply of radient energy of the tropical regions and when they come here to this climate the amount of energy is less they require more exposure to light to bring about their proper energy and growth. Therefore, they are more prone to develop rickets. I am citing this as an example of how difficulty it is to be sure that a thing is or is not healthful.

Dr. R. H. Rose: It is all right to appoint a committee, but there do not seem to be sufficient facts at hand to enable proper standardization. It would be impossible to appoint a committee today to pass on foods unless they first studied this question. What we need is more study of food. The Government should appoint a man to study these questions. They have studied out the caloric value of foods but it required an immense amount of work. The laws would naturally follow and in addition it would be possible to educate the public from which we would get better results.

Mr. Forbes: In closing, I might say that the state commissioners have standardized many things that need no standardization. For instance, we had one on ginger ale, whereas it would seem unnecessary to require more than that the water should be pure and it should contain no deleterious substance. The formulae for the various brands of ginger ale vary according to the manufacturer and his conception of a pleasing flavor. It is like candy, each maker exercising his own fancy in his endeavor to intrigue consumer preference.

There was issued a standard for rye bread one year ago and we find that rye bread must contain *some* rye I do not see why it should be standardized in that way. It should be more definite, than merely a loaf of bread must contain rye flour.

They have attempted to standardize pie fillings. They are in competition with every housewife in the country, each of whom has her own ideas on the subject. When a manufacturer advertises lemon pie it should contain some lemon flavor, but every housewife has her own receipt, so why should not the commercial pie baker exercise the same individual opinion Many foods are not susceptible of standardization, but others require definition or standardization to protect consumer and manufacturer. A properly organized and equipped standards board with definite authority back of its promulgations would most certainly make for more intelligent and efficient standards and thus make it easier to secure general adoption by the several state governments, thus producing the result for which we have been long striving, uniformity of pure food regulation and enforcement.

My reason for suggesting a committee is because such a committee could have as a member a representative of the manufacturers to suggest what should and what should not be standardized. I have submitted my thought to you this evening as something that will be crystallized in the form of a bill to be presented to Congress. The food manufacturers are urging fixed definitions and standards for foods, to establish standards for efficiency and quality. He is now asking for some rule of conduct that he can follow so his goods will be pure and that his competitors will have to live up to.

The Physician's Library

Paul Ehrlich als Mensch und Arbeiter. By Martha Marquardt. 112 pages; 6 plates. Stuttgart, Berlin & Leipzig: Deutsche Verlags-Anstalt, 1924.

Miss Marquardt was Professor Ehrlich's secretary from 1902 to 1915 and was in a position to know him and his work more intimately than any other person. It is very fitting, therefore, that she should present this delightful sketch of the savant's personality. She demonstrates that he was a genius, carrying on his remarkable work with a dearth of apparatus that would be quite out of the question to the average research worker. She says that Ehrlich's motto was "much work, little publication and no preliminary communications," and he lived up to his motto in his greatest work, the discovery of salvarsan. Despite the fact that he reached his goal in 1907, he did the most careful experimental work on animals for two years before trying it out on man, and it was in the year 1910 that his first clinical works were published and the drug given to the profession.

Ehrlich will be more appreciated as time goes on, but there can be no doubt, as the *British Medical Journal* says, that "the actual discovery of salvarsan stands out as the greatest therapeutic advance made in the present century, but Ehrlich's greatest achievement was really the directing of therapeutic research along a new line—the line of organized search for synthetic parasiticidal remedies."

The book is delightful in anecdote and description and will be read with interest by those men who find pleasure in knowing the intimate life of our great men.

Miss Marquardt is to be congratulated on her pleasing style and her ability to so accurately portray the details of the career of this great physician.

Communicable Diseases. By Dr. Allen J. McLaughlin, U. S. P. H. S. 269 pages. New York: Harper & Brothers, 1924.

This is one of the first of Harper's Public Health series, which are under the authorship of the author of this book. Dr. McLaughlin, who is one of our foremost sanitarians, is to bring out under his editorial direction a series dealing with the most important public health problems as they interest the laity. The purpose is to educate various civic organizations, professional workers and the more intelligent persons in the community in matters which they should know. In this book the doctor discusses in a bright, conversational and easily understandable way the diseases spread from the discharges from the mouth and nose; by intestinal discharges; by insects; the diseases spread by animals, and then miscellaneous diseases.

These subjects are presented in such an interesting manner as to merit instant attention and will, we doubt not, go far toward bringing to the notice of the intelligent public those ideas in preventive medicine which will aid them in doing their part in the eradication of disease.

Public Health in the United States. By Harry H. Moore. 557 pages. New York: Harper & Brothers.

Why do men die before their time is a problem which is answered in the second part of this valuable book. It comes under the general heading of human and economic costs of disease and the author clearly sets forth how expensive a proposition it is to be ill. He goes on to discuss the warfare against disease; the exploitation of ignorance regarding disease; the conquest of disease by health, and the expanding field of public health. All of these subjects, physicians must admit, are exceedingly pertinent and a perusal of the book will go far toward pointing out the necessary high spots in the health education of the general public.

The Medical Times

A MONTHLY JOURNAL
OF
Medicine, Surgery and the Collateral Science
ESTABLISHED IN 1872

EDITED BY
H. SHERIDAN BAKETEL, A.M., M.D., F.A.C.P.
ARTHUR C. JACOBSON, M.D.
Associate Editor.

Contributions.—EXCLUSIVE PUBLICATION: Articles are accepted for publication on condition that they are contributed solely to this publication.

When authors furnish drawings or photographs, the publishers will have half tones and line cuts made without expense to the writers.

SUBSCRIPTION RATES
(STRICTLY IN ADVANCE)

UNITED STATES (Including Alaska, Cuba, Mexico, Porto Rico, Hawaiian and Philippine Islands)	$2.00 per year
CANADA	$2.25 per year
FOREIGN COUNTRIES IN POSTAL UNION	$2.50 per year

SINGLE COPIES, 25 CENTS

Definite written orders for THE MEDICAL TIMES are required from all subscribers, to whom the journal is thereafter regularly forwarded.

Notify publisher promptly of change of address or if paper is not received regularly.

Remittances for subscriptions will not be acknowledged, but dating on the wrapper will be changed on the first issue possible after receipt of same.

All communications should be addressed to and all checks made payable to the publishers.

MEDICAL TIMES CO.
ROMAINE PIERSON, *President*
H. SHERIDAN BAKETEL, *Treasurer*
GEORGE B. CREVELING, *Secretary*

95 Nassau Street - - - New York

NEW YORK, MAY, 1924

Press Co-operation

On the evening of March 18, 1924, that extraordinarily active organization, the Medical Society of the County of Kings (Brooklyn, New York), discussed with the editors of all the local newspapers and with Arthur Brisbane the question of medical publicity, and practically arranged—we shall not say a modus vivendi—a rapprochement through which matters concerning the medical profession and the press might be more satisfactorily handled. A newspaper needing authoritative information or advice can now get it by telephoning the Society and being referred to an expert in any field of medicine who will be expected to give ethical counsel to the editor.

Here is the modern spirit in the last stronghold of medical medievalism.

The Baby Scale

Much of the panic encountered in the homes of young parents when the baby fails to gain revolves around the baby scale. There is a pernicious side to the baby scale, just as there is to the clinical thermometer. Its regular use by the mother may be harmful even if a gain is shown every week; she is likely to be cocksure that the baby is all right if he gains, whereas that fact may not by any means be conclusive proof that the baby's general progress is satisfactory.

The physician should weigh the baby from time to time himself, and keep his own personal record; the mother will do well to leave that detail to the doctor; and if she does weigh the baby herself it should be at rather long intervals.

Anxiety with respect to this question of weight has very much to do with "queering" lactation.

One oftentimes sees really healthy babies made the subjects of grave concern, with much resulting confusion for the physician, when the failure to gain might better be ignored and more attention paid to relatively neglected factors making for health and growth.

The psychology of this situation is akin to that oftentimes overlooked in the case of patients whose hearts have to be examined from time to time. Beverley Robinson has long and properly insisted that we ought to keep our own counsel about the hearts of people. He wisely makes this agreement in undertaking the care of such individuals. He advises them how to live, gives them whatever treatment they need, and doesn't discuss pathology with them.

When panic ensues in a household which has been overdoing the baby-scale business, and the baby is obviously a thousand miles away from athrepsia, the scale ought to be practically discarded.

Our Far-Flung Metropolitan Practice

A man practising medicine in the metropolitan district may have to cover as great distances as the average country doctor, if not greater. The clientele is likely to be scattered in such a way that if one has to make many house visits one is sometimes hard put to it to make the rounds and attend to all other professional obligations. Doubtless each one of us has thought sardonically at times of the well known hardships of the country doctor. You can get jaded traveling around our great boroughs just about as thoroughly as you can in the great hinterland. And we doubt whether long-distance night duty in the metropolitan district is any more enjoyable than in the neighborhood of Hardwick, Vermont, when one has to do it.

On Menaces

Professor H. M. Parshley, of Smith College, is a forceful spokesman (*The American Mercury*, February, 1924) for the group of biologists who are insisting upon the futility and menace of the Uplift in the face of the plain facts of Mendelian heredity. This attitude concerns the medical profession, for it is largely through our ministrations that the so-called unfit are assisted, and charity, philanthropy and popular education applied. There are intellectual, scientific and human (we did not say sentimental) sides to this big question.

The Uplift, says Parshley, considered from the viewpoint of the superior man, is clearly worthless as an agency of social betterment, since it is based upon hollow and fallacious premises; and whatever satisfaction sentimentalists may derive from coddling the weak and pitiable, there is no manner of doubt that the means at the command of society might be better employed in providing optimum conditions for the development of worth-while talents.

"The teaching of modern biology is thus diametrically opposed to the abolition of free competition, as implied, for instance, is giving undue assistance to the weak at the expense of the strong . . . and it not only reaffirms the soundness of Darwin's principles but urges even that society should further by every means available the sifting process implicit in the struggle for existence. *To him that hath shall be given!*"

This sounds much more like Nietzsche than Darwin, it seems to us. It is extremely hard-boiled.

Parshley insists that the Uplift is powerless to raise any individual or class above the level of the hereditary constitution with which he or it is endowed by nature, and any program of social reform which fails to take this into account is bound to do more harm than good in the end. If, he says, the advantages of modern life are to be preserved for those capable of enjoying them it is clearly the first duty of the state to take measures, first, for the contentment and repression of the underman, and second, for the wise control of his misguided leaders. We should stop dragging vast hordes of morons bodily through the high schools and state universities.

The modern biologist reaffirms the old doctrines that figs cannot be gathered from thistles and that silken purses cannot be fashioned from sows' ears. Successful types are not produced from inferior stocks through improvements imposed from without. We do not now, however, allow evolution fully to take its course, with the survival of the fit and the elimination of the feeble and botched.

The trouble appears to be that we find it impossible to view with equanimity the painful struggles and hopeless sufferings of the unfit in free competition with their betters. "The immemorial struggle for existence affords too disagreeable and disquieting a spectacle to be tolerated in the public gaze. Hence charity, philanthropy, the Uplift." The purpose of charity is "to heal or hide the sore spots and so make it possible for the unfortunate minority to enjoy life unharrowed by the sight of the sanguinary struggles and pitiful tragedies characteristic of feral existence. From it, however, has developed a monstrous growth, the Uplift, perhaps the most threatening enemy that civilization has to face today. Of the many counts against the Uplift that might be readily submitted to the intelligent reader, let us consider but one: namely, the utterly false hopes for the race which it bases upon measures that are, at best, nothing but temporary means of relief for the individual. It is here that the biologist and the social reformer come into irreconcilable conflict."

Of course, if all this be true, the physician is a great menace to society and the race, for no one is doing so much as he to safeguard and care for the weaker brethren.

There must be some profound flaw in this Lothrop Stoddard type of reasoning. Compared with most other victims of the mode of execution prevailing in His time, Christ succumbed quickly to crucifixion (about six hours). Nietzsche himself became a mental wreck in his final years. The poor make-up of Napoleon excited the wonder of his physicians. Endless examples could be cited of the mental and physical shortcomings of the greatest geniuses, notoriously subject to such disabilities. Doubtless a board of biologic judges of the Parshley school would have condemned most of these in their childhood to social perdition. Think of the stupid youth and late maturity of the Rousseaus, Sheridans and Goldsmiths, and reflect upon their probable fate at the hands of such a board.

It is all a new phase of the itch to order the lives of one's fellows in ways even more terrible than the religious persecutions of the past. Then it was for the glory of God and the propagation of the true faith; now it is in the sacred cause of genetics and biology.

What shall be done with the zealots themselves? Are not they the greater problem?

Miscellany

Conducted by Arthur C. Jacobson, M.D.

Attention Life Extension Institute!

Our average span of life is longer than it used to be, but, on the other hand, in any ordinary year of safety first we have from 75,000 to 90,000 persons killed by accident. The figure is a little vague because a few thousands more or less do not, after all, very much matter. In addition we have 12,000 suicides and 2,000 murders. Thus there are about 100,000 persons every year who prefer a violent to a normal death. I do not suggest that they are wrong. Take a man of 65 years of age. He has retired from business. He doesn't care about reading. And he has thus nothing left to live for except a vain attempt to preserve at great expense the root canals of his last few teeth. Is it not best, after all, for him to be knocked down neatly at the corner of Broadway and Ninety-eighth Street? His daughter is married. His wife is possibly divorced. And who is there to object? It does not mean a life lost, but only a welcome relief from a statistically ascertained three years of lonely and needless existence.

Years ago Sir James Barrie wrote about the Society for Doing Without Some People, whose motto was "Better Dead." It was and might still be an excellent society. It saves temper. It saves alimony. And, above all, it saves one the bother of going to church.

With surgery perfected by science, one must expect a cult like this, of dying without doctors. It is a widespread cult. In the war we only lost 60,000 killed, and that, after all, was in two years. But here in a period of profound peace there are killed, outside Oklahoma, half as many people again as those killed in France. Really, if we are to judge by statistics, we might almost say that our boys when they went to Château-Thierry were well out of harm's way.

The severest mortality was and is at home. Whatever else has risen in value, it has not been what Tom Hood in his poetic manner once called "flesh and blood."—*New York Times.*

Professor Kammerer, professor of biology—which means the science of life—in the University of Vienna, says that the problem is not to make the body live longer, but to make the brain *remain young for a longer period.*

Therein Professor Kammerer spoke what the United States calls a "mouthful." A human being is useful while the brain is young, before it sets like concrete and refuses to take new impressions. Once the mental concrete is set, the sooner the body goes back into the ground and the spirit is set free to start over again in a younger brain, the better. Not older bodies, but younger brains is what civilization needs. —*Arthur Brisbane.*

Disease and Development

(Continued from page 104)

tail are nearly in contact"[79]. "The angles of both elbow and knee are in the first instance alike directed outwards and somewhat backwards"[80]. "As early as the sixth day, movements, as we have said, may be seen in the limbs of the embryo upon opening the egg"[81]. By a subsequent rotation of the hand and foot, on the arm and leg, the toes are directed straight forward, and the digits of the wing backwards and somewhat ventralwards"[82]. As early as the sixth day movements may be seen in the limbs of the embryo. On the fourteenth day, the chick moves so as to lie lengthways in the egg. On the twentieth day or thereabouts the beak is thrust through these membranes, and the bird begins to breathe the air contained in the chamber"[83].

In human embryos, "There are two stages to be considered, primitive cephalic spirals and definite cephalic spirals. During the spiral stage, the cephalic development is accentuated"[84]. "The greatest variations of this group are observed in the dorsal region. In the formation of the tail of the embryo, in the majority of the embryos of this group, the tail tends to inscribe a circle, the caudal circle, as in the preceding stage, the radius of which is, however, exceedingly variable. Later the embryo entire designs a double spire, cephalic and caudal, with the dorsal arc as a union, the close approximation of this double spire has increased the deviation of the head and tail to left and right." "When the general movement of the embryo is parabolic, the dorsal curve, which is exhibited only at this moment, is elliptical. When the movement of the embryo becomes spiral, the cephalic curve, then the dorsal curve, becomes spiral also. To give these embryotechtonic curves absolute numerical values, would be to destroy the entire truth, by suggesting all possibility of variation among embryos"[85]. "The embryotechtonic curves become thus a criterion of the normal or abnormal character of this or that particular embryo"[86].

Observe now, that the variations, peculiarities, monstrosities and diseases of embryos, no matter how excited, are ecquired and accomplished by means of their movements. When the appropriate stimulus is applied at the proper time and place and in the appropriate way. Then the movements of the embryo become normal, by normal exercises, movements, he develops himself normally. When the environmental stimuli are abnormal in character, place or time, the embryo reacts, i.e., moves abnormally; his abnormal exercises develop him abnormally; he acquires variations, monstrosities and diseases, and dies, by thousands. The axes of the plant, (as seen on page one) are its stem, also branches of the stem. The vertebral column, the cerebro-spinal or central nervous system, and by derivation the head and torso or trunk combine to make the axis of the vertebrate. So with vertebrates, adult or embryos, as well "as with plants; the axis cannot become monstrous without it; in some way, affecting the organs which are subsequently developed from it, so axial anomalies are almost always accompanied by deviations of structure in the appended parts"[87]. "Professor Huxley applies the same principle in accounting for the remarkable, though normal, differences in the arrangement of the nervous system of the mollusca," (Snail farms). "Of anisopleura, the largest division of the Gasteropoda, the symmetry so marked in the preceding group, (Cephalora) is greatly obscured. The cause of this lack of symmetry is to be explained on mechanical grounds. On the back there is usually developed a large shell, which, with its included viscera, acquires a very great proportional weight. This shell naturally falls over to one side, and by thus doing twists the various organs. Not only is the alimentary tract affected by this torsion, but the openings of the kidneys, the gills, and other organs are transposed, so that the gill, for instance, of the normal right side is in reality borne upon the left. The effect of this twisting is to coil the nerves in the shape of the figure 8. Lankaster was the first to point out the systematic importance of these facts. Coincident with this torsion frequently occurs an atrophy of parts, and, from the fact that the twisting usually occurs in one way. It is the gills, kidneys, etc., of the left side which usually suffer or even entirely disappear"[88]. "Hatschek has expressed in the terms protaxonia and heteraxonia the fact that in one great group of animals, the coelenterata, the primary axis of the ovum becomes the chief axis of the larva and of the adult; while in all animals with bilateral symmetry these two axes are not the same"[89]. In the snail, "The first cleavages of the egg belong to a series of spiral cleavages which for at least nine generations of cells are alternately dexiotropic and laetropic, (i.e. right and left). The so-called spiral cleavages are always radially symmetrical," (globular?), symmetry of the egg prevails undisturbed while the primary meso-blast is formed. After this event the posterior half of the egg becomes more or less bilaterrally symmetrical, while the anterior half remains radially," (globularly) "symmetrical." Finally at a relatively late stage the entire egg becomes bilateral. The more advanced the cleavage the more prominent the rotation becomes. The whole ectoblast is rotated through 45 degrees"[90].

It is not until the three smaller enteroblasts are formed and the whole of the ectobalst has been rotated in anti-clockwise direction, that the planes of symmetry come to coincide in the median plane of the future animal. The bilateral symmetry which is to characterize the adult appears at different times and in different directions in each of the layers, and at a later period these planes which have been diversely established, come to coincide in the chief axis of the developing organism"[91]. Crampton's observation, that in a sinestral gasteropod, Physa, (snail), there is a reversal of the direction of spiral cleavage, is particularly interesting in this connection. For the fact that in very many cases the first cleavage is dexiotropic and the second cleavage laetropic is a profoundly important and significant one, determining, as it does, not only the direction and relation of the polar furrows, but also influences, more or less, the character and direction of every succeeding cleavage. We now know that upon the symmetry of the egg and of the successive cleavages often if not typically the symmetry of the adult form depends; and upon that the lack of symmetry is probably to be inferred"[92]. "It seems to me that phylogenetically neither the yolk cells or the shell gland were the source of the torsion; they merely took part in a general twisting of the entire posterior end of the embryo"[93]. "In crepidula, the first recognizable cause of the torsion lies in the asymmetry of the cells 5 C and 5 D"[94]. "Further, the more advanced the cleavage

is the more prominent the rotation becomes"[95]. "Variations may and do occur"[96]. "In fact, have to be explained by a mechanical method"[97]. "Structures of the bodies of living creatures, have arisen in a purely mechanical way"[98]. "The greater the number of formation limitations that will be examined, the greater of them will appear to come from a mechanical cause"[99]. "The spiral type of organism owes its peculiarities entirely to mechanical conditions"[100]. So, symmetry and asymmetry, bilateral symmetry and bilateral asymmetry, most all peculiarities are due to the movements of the embryo or larvae, whether these movements are microscopic, as in plants, or cellular, or gross as in animals. They are the result of embryonic motion, sometimes flexion, sometimes extension, sometimes spiral rotation to right and to left upon the axes of the organism when an embryo, larva or developing form. The normal or abnormal character depending upon how, when and where these movements are directed.

In the snail, and possibly in vertebrates as well, "we now know that upon the symmetry of the egg and of the successive cleavages often, if not typically, the symmetry of the adult form depends; and upon that the lack of symmetry is probably to be inferred"[101]. "It is not until the three smaller enteroblasts are formed and the whole of the ectobalst has been rotated in anti-clockwise direction that the planes of symmetry in the three layers come to coincide in the median plane of the future animal. At a later period these planes, which have been diversly established come to coincide in the chief axis of the developing organism"[102]. "In amphioxus the rotation occurs in anti-clockwise direction,—and during later development it becomes corrected by a compensatory rotary growth of the pharyngeal structures in an opposite direction"[103]. In human embryos, "the consequence is established that the curvature of the chorda is a co-working cause of the irregular segmentation of the vertebral segments"[104]. In "Congenital Vertebral Curves," Falk describes curvatures and malformations of the cranium[105]. "In a number of fishes, the want of bilateral symmetry is very striking; the body is very compressed, and on one side, is whitish or uncolored, while the other is dark; further the eyes are both on the colored side. When they are born—they are symmetrical fishes, with an eye on each side, and may be seen swimming in midwater, nearly straight, but with a tendency to lean to one side. The tendency to do so becomes more marked; but; the eye of the inclined side disdains to look downward, and strives to look upwards; the endeavor accomplishes its purposes, and finally it becomes settled upwards, and the contiguous parts of the skull are twisted round to correspond"[106]. "The eye thrust into the sand is naturally twisted round to the upper side, and this tendency begun in very young individuals becomes hereditary, while the lack of pigment on the under side is also transmitted by inheritance." Experiment by Cunningham, also by Kellog indicated "that the dissappearance of the pigment cells was originally due to the absence of light, and that the change has now become hereditary"[107]. "It is true that asymmetry is seen in the viscera of vertebrates generally, especially about the nose of the toothed cetaceans." Personal examinations of skeletons of all vertebrates seen in museums in several cities showed that "as with plants the axis cannot become monstrous without it in some way affecting the organs which are subsequently produced from it, so axial anomalies are almost always accompanied by some deviations of structure in the appended parts"[108].

In lower animals showing circumnutation: "finally, it is impossible not to be struck with the resemblance between the foregoing movements of plants and many of the actions performed by the lower animals"[109]. "Cope's theory of kinetogenesis or "mechanical genesis" has been accepted so widely, especially by paleontologists and pathologists, that it should be studied in as stated. The word kinetogenesis is thus defined: "The doctrine or hypothesis that animal structures have been produced directly or indirectly, by animal movements"[110]. Enough has already been cited to show that the growth-movements called circummutation of the axes and their sub-divisions by which almost all of the peculiarities of plants are acquired during development; differ but little from those of animals and their embryos by which almost all of their peculiarities are acquired. Of course the circumnutation of plant axes are more directly under the influence of the environment acting by absorption from the circumnutating tip; the circumnutating vertebral column—or better the circumnutating axial skeleton—combined with many other movements, such as flexion and extension of the torso, trunk or main axis, with its subsidiary axial movements in the limbs appear to be even more hereditary, though almost equally under uterine or postnatal environmental developmental movements. An application of these same principles for explaining the origin of diseases has been already published[111].

The fact is that reproduction, development, evolution of animals and plants: and of bacteria and parasites, all cellular activities, and all gross activities are best interpreted as hereditary adaptive movements: the diseases are interpreted as movements which are bady adapted to the ever varying environmental movements. "As every person dies from the disease with which he was born, and during the period of differentiation the organ is marked out which is the weak link in the chain"[112]: and because "the nine hundred and ninety with unfortunate congenital variations are extinguished in the struggle, etc."[113]: for the "theory of kinetogenesis" or "mechanical genesis," (by animal movements) "has been accepted so widely by pathologists," then mechano-therapy should be the chosen method of the treatment and prevention of disease: for Darwin plainly showed that disease developed upon the variations, anomalies, monstrosities, varieties, species, etc., which he so obviously accounts for by maladapted movements.[114].

Bibliography

45. Burbank, "His Methods and Discoveries," V. I, pp. 36-38.
46. Same, pp. 39-43.
47. Philadelphia Public Ledger, Sept. 16, 1923, citing Dr. Charles F. Herm, formerly of the American Museum of Natural History, formerly assisting Dr. Alexis Carrel, exhibitel in Pelham Theatre, New York, Sept. 15th, 1923, before Dr. William Firthwells, biologist of the State Conservation Commission, and Geo. N. Pindar and Harry F. Beers, American Museum of Natural History.
48. Richard Swann Lull, "Organic Evolution," p. 8.
49. Prof. Lull, "Organic Evolution," p. 9.
50. "Synthetic Philosophy, Biology," V. II, p. 352.
51. Same, V. II, p. 355.
52. Ibid. p. 360.
53. Ibid. p. 360.
54. Haeckel, "Evolution of Man," V. I, p. 6.
55. Spencer, "Synthetic Philosophy, Biology," V. I, p. 136.
56. H. W. Conn, Ph.D., "Evolution of To-Day," p. 75.
57. Spencer, "Synth. Phil., Biology," V. II, pp. 192-212. Citing Prof. Edgar Cope, "Primary Forces of Organic Evolution."
58. Spencer, "Synth. Phil., Biology," V. II, pp. 192-212.
59. Same, V. II, p. 227, citing Cope.
60. Same, p. 201.
61. Ibid, p. 226, citing Edgar F. Cope, "Mechanical Development of Hard Parts of Animals," "Amer. Journ. Morpho.," V. III.
62. Spencer, "Synth. Phil., Biology," V. II, p. 343.

63. Dr. Henry Bascom Thomas, "Fusion in Scoliosis," Internat. Survey of Surg. V. I, No. 6, citing Journ. Amer. Med. Ass'n. 81, 1575, 1573. 16:10; 1923.
64. Prentiss and Arey, "Text-Book of Embryology," Introduction, p. 4, edit., II.
65. Spencer, "Synth. Philos., Biology," V. II, p. 174; pp. 129, 168, 158.
66. Rich. Swann Lull, "Organic Evolution," p. 43.
67. Haeckel, "History of Creation," V. II, p. 71.
68. Conklin, "Heredity and Environment," p. 159.
69. Same, pp. 329, 330; working on Styela, an Ascidian.
70. Haeckel, "History of Creation," V. I, p. 159.
71. Same, p. 171.
72. Mall, J. Franklin, "Monstrositus, Teratology," etc.
73. Spencer, "Synthetic Philosophy, Biology," V. II.
74. Asa Gray, "Lessons and Manual of Botany," p. 15.
75. Foster and Balfour, "Elements of Embryology," p. 3.
76. Same, pp. 34 and 35.
77. Same, p. 116 (change of position means movement on the third day in the chick).
78. Same, Ibid.
79. Same, p. 233.
80. Same, p. 233.
81. Same, p. 303.
82. Same, p. 233.
83. Same, p. 303.
84. Eugene Boujard, "Mechanism of Modelling Human Embryos; Embryotechtonic Curves," herausgegeben von Wilhelm Roux, p. 34.
85. Same, p. 48.
86. Same, p. 74.
87. Charles Darwin, "Variations in Animals and Plants," Vol. II, p. 302, citing Moquin-Tandon, "Elements of the Teratology of Plants," 1841, p. 13; and Theodore Huxley's Paper on the Cephalous Mollusca, in the "Philosophical Transactions," London, 1853, p. 56.
88. Kingsley's "Natural History," Vol. I, "Lower Invertebrates," p. 294, written by Kingsley, J. S., Editor.
89. E. G. Conklin, "Cause of Inverted Symmetry," p. 163, in Anat. Anzeug., von Karl von Bardeleben, p. 23, Jena, 1903.
90. Conklin, "Embryology of Crepidula," (Snail, Limpet), in "Journal of Anatomy," April-May, 1897.
91. Conklin, "Embryology of Crepidula," Cause of Inverse Symmetry."
92. C. B. Davenport, "Animal Morphology in its Relation to Other Sciences," "Science," pp. 699-700, 11, 25, '94.
93. Conklin, "Embryology of Crepidula," p. 172.
94. Same, p. 55.
95. Kellicott, "Outlines of Chordate Development," pp. 90, 91, and writing of frog's eggs, embryos.
96. Davenport, "Animal Morphology," pp. 699-700.
97. Haeckel, "History of Creation," V. I, p. 237.
98. Same, p. 291, quoting Empedocles.
99. Winckel.
100. Conklin, "Cause of Inverse Symmetry," also "Embryology of Crepidula."
101. Davenport, "Animal Morphology," etc., pp. 699-700.
102. Conklin, "Cause of Inverse Symmetry," "Embryo. of Crepid," p. 78.
103. W. E. Kellicott, "Outlines of Chordate Development," p. 56.
104. Van San Rat Edmund Falk, "Congenital Vertebral Curves," p. 271.
105. Same, p. 271.
106. Kingsley, "Standard Natural History," Fishes, p. 273.
107. Richard Swann Lull, "Organic Evolution," p. 166.
108. Darwin, "Variation of Animals and Plants," V. II, p. 302.
109. Darwin, "Powers of Movements in Plants," p. 571, with reference to his "Movements and Habits of Climbing Plants," pp. 173-4; 1875.
110. Richard Swann Lull, "Organic Evolution," p. 179.
111. "Spondylopathology," "Malformation of Body-Segments and Visceral Diseases," published in American Medicine.
112. Ringer quoting Stockard, American Physician, Feb., 1923, "Inefficiency of Medical Service as now Functionating."
113. Prof. Lull, "Organic Evolution," p. 112.
114. Charles Darwin, "Origin of Species," "Variations of Animals and Plants," "Powers of Movements in Plants," "Movements and Habits of Climbing Plants," etc.

Drug Eruptions

(Continued from page 108)

thema with herpes zoster of the right thigh after bismoluol. This patient was also sensitive to other bismuth salts, as the intracutaneous tests showed.

Bismuth is execreted by the kidney, salivary glands and the digestive system. Levy-Bing[87] shows by radiographic studies that this metal preparation when injected intra-muscularly, is much more quickly absorbed than grey oil.

The "bismuth line" seen on the gums from the use of this drug is slated colored or grey-blue, sometimes remains more or less permanent, and is due to a deposit of bismuth sulphide in the sub-epithelial connective tissue.

Bromides and Iodides

In general the lesions from the bromides and iodides resemble each other closely, the "bromic" eruptions are indolent and tardy, the acute bullous (serous and hemorrhagic) lesions on the skin and mouth from iodides are rarely observed from bromides. The acne lesions from both are so frequent as to be considered by some as physiological. They vary as the ordinary acne does, but surpass the usual locations of acne vulgaris and affect the hairy parts without the antecedent existence of comedones. The areola around the bromide and iodide acne is more vividly red and when it occurs in infants, may become so confluent as to resemble condylomata lata. The other skin manifestations from these drugs are: roseolar, diffuse erythematous, urticarial, papular, scaly (bromides), eczematous (iodides), petechial (iodides), erythema nodosum (bromides), nodular and tuberose (iodides), furuncular, fungoid, ulcerative and the rare bullous forms. A polymorphous form consisting of the different manifestations also occur from the iodides. Parkes Weber[88] reports intra-oral oedema that spread to the face, mouth and pharynx, with swelling of the thyroid and submaxillary glands as an iodism.

A very important contribution by Wile[89] appeared recently in which he and his associates show that the ingestion of bromides readily displaces the chloride in the blood, that the bromide is stored in the body and not readily excreted in the urine (taking about five to six weeks), and that the kidneys readily filter the iodides (requiring only forty-eight hours). They are not able to determine any direct relationship between the amount of the drug (bromide or iodide) ingested and the appearance of the lesion. In the blister contents from these drugs they readily detect bromide or iodide, but not in the pustular and acne lesions.

In a further study, Wile advises the intravenous administration of 100 to 500 cc. of decinormal saline solution for mental an cutaneous bromism, as it brings about prompt improvement. He explains the action of the saline as due to a mass action of the chloride throwing the bromide into the blood.

Intolerance to the iodides may sometimes be overcome by simply increasing the dose. Eliminative measures, Fowler's solution internally and cessation of the remedy will clear up the lesions. It might take however considerable time for the lesions to disappear. A patient with nodular lesions all over the body, under my observation, had taken potassium iodide for twelve years for his asthma and it took six months before the lesions regressed.

(Concluded in June Issue)

Physicians Library

(Continued from page 114)

A Clinical Guide to Bedside Examinations. By Drs. H. Elias, N. Jagic and A. Luger, Vienna. Translated by Wm. A. Brams, of Chicago. New York: Rebman Company, 1923.
This is a useful little book, setting forth the various methods necessary for a successful physical examination.

Heart Records. By S. Calvin Smith, M. D., Philadelphia. 313 pages. Philadelphia: F. A. Davis Co., 1923.
This book gives a prominent part to emphasizing the usefulness of graphic records in cardiac examination. He believes cardiography is still far from having attained maturity. The author presents in logical sequence information which will do much toward fixing the science in the mind of the reader. The subject is well presented.

International Clinics, Vol. 3, 33rd Series. Philadelphia & London: J. B. Lippincott Co., 1923.
Twenty-eight physicians have contributed to this volume and, as usual, it stands out as one of our most practical clinics. Most physicians will not agree with Dr. L. Duncan Bulkley regarding his findings in cancer and his insistence on the medical treatment thereof, but, on the whole, this volume is the peer of its predecessors.

Methods in Medicine. By George R. Hermann, M. D., of the University of Michigan. 521 pages. St. Louis: C. V. Mosby Co., 1924.

This book is a manual based on the medical service of Dr. George Dock when he was Dean and Chief of the Medical Service at Washington University, St. Louis. It is intended to enlighten physicians and internists who are in medical services.

Part 1 is devoted to administrative methods employed in hospitals and to the regulations and details of handling cases. In Part 2 we find the special methods of clinic and laboratory investigation as applied to the complete study of cases. Part 3 is devoted to therapeutic methods, with emergency measures, and the subsequent treatment and management of the cases. The fourth part devotes itself entirely to approved dietetic methods, while the last part exemplifies the recording and graphic methods in the form of a composite history with representative charts.

Diagnostic Methods. By Herbert T. Brooks, M. D., Los Angeles. St. Louis: C. V. Mosby Co., 1923.

The fourth edition of this book brings it up to date. The book presents technic for the use of those who are doing physical examinations and laboratory work.

Alcohol and Prohibition. By Victor G. Vecki, M. D., San Francisco. Philadelphia & London: J. B. Lippincott Co., 1923.

The author, a distinguished California physician, demonstrates the legitimate use as well as the abuse of alcohol. He agrees that temperance is advisable and shows the abuses which have crept into the interpretation of the enforcement of the Volstead Act. The book will naturally cause much discussion, because the opinion of the drys is very dry and the opinion of the wets is very wet. Dr. Vecki puts the whole situation in a nutshell when he says that prohibition laws will be really effective when the desire for drink is subdued, and this can only be accomplished by individual social education. This book makes good reading and is commended to physicians despite their feelings on prohibition laws.

Radium and Its Emanations. New York: National Radium Products Co., 280 Madison Avenue, 1923.

This little brochure presents an interesting outline of radium and its emanations, going into the treatment of certain definite conditions in which it is indicated. Those who are interested in radium treatment will find it of real value.

Hernia. By Leigh F. Watson, M. D., Rush Medical College. 660 pages; 232 illustrations. St. Louis: C. V. Mosby Co., 1924.

If there is anything on this subject which is not contained in this book it must be small and unimportant. At first glance one would say that it would be quite impossible to fill up so much space with matter on what many people regard as an unimportant topic, because, after all, hernias are not regarded with great seriousness. However, there is no verbiage in this book and the author has presented his subject in a most excellent manner. He deals with the anatomy, etiology, diagnosis and symptoms, as well as going into elaborate detail as to operative procedure. The illustrations add much to the text and the combined whole presents a volume of decided interest and value.

Sexual Problems of Today. By Wm. J. Robinson, M. D., New York. 340 pages. New York: Critic & Guide Co., 1924.

The twelfth edition of this book brings it up to date. The volume has been reviewed in these pages often before and the fact that it has run through so many editions is proof positive of the merit of its contents. Dr. Robinson considers the subject from an eminently scientific standpoint and to him a tremendous amount of credit is due for taking these subjects out of the Pornographic class and elevating them to the position in which they rightfully belong.

Management of the Sick Infant. By Langley Porter, M. D. and William E. Carter, M. D., University of California. 2nd Edition; 659 pages. St. Louis: C. V. Mosby Co., 1924.

This is an interesting work and is unique in that the baby is regarded as a definite entity and its diseases are treated accordingly. In other words, the authors do not take up pneumonia and handle it as an adult disease with certain features which may reveal themselves when babies suffer therefrom, but they treat the condition solely from the infant's standpoint. This holds good of every disease and gives the reader a different slant on the condition. The subject is very well presented.

Intranasal Surgery. By Fred J. Pratt, M. D. and John A. Pratt, M. D., University of Minnesota. 334 pages. Philadelphia: F. A. Davis Co., 1924.

The illustrations in this book stand out as a very prominent feature. They are very numerous and most helpful in showing just what the operator has to do. If one could study this form of surgery by mail, we can imagine no better book than the Pratts have put out. They go into much detail in anatomy and in the description of operative procedure.

Public Health

Industrial Hygiene Clinic for the Diagnosis and Treatment of Industrial Diseases

The need has long ago been recognized by the medical profession at large in the State of New York for a clinic especially equipped and adapted for the diagnosis and treatment of industrial diseases.

Accordingly, an arrangement to this end has been perfected under the joint auspices of the Reconstruction Hospital in New York City, the Industrial Hygiene Division of the State Department of Labor and the College of Physicians and Surgeons.

This important move concerns not only the wage earner, the employer and the individual physician, but society at large, as the well-being and efficiency of the State are of necessity concerned in it.

This is an important move and should receive the active support of the medical profession in the State.

Elaborate plans are being made for making studies of occupational diseases and for publishing the results of research in new methods of treatment. It is contemplated as the Clinic develops to train doctors and nurses for special service in industrial medicine and surgery.

The Industrial Hygiene Clinic is now open at the Reconstruction Hospital, corner of 100th Street and Central Park West. The Reconstruction Hospital has been equipped with all of the devices necessary for the diagnosis and treatment of industrial diseases. On the staff of this Clinic there are eminent specialists and consultants. The Hospital employs X-rays, electrotherapy, phototherapy, hydrotherapy, massage, mechanotherapy and occupational therapy. Consultation hours are Tuesdays and Fridays, 2 to 4 P. M.

Treatments given Mondays, Tuesdays, Wednesdays, Thursdays, Fridays, from 9 to 5. Saturdays from 9 to 12. For further information address the Director, Industrial Hygiene Clinic, 100th Street and Central Park West, New York City.

The Health of a Neighborhood

In a study entitled "The Health of the Neighborhood," the New York Association for Improving the Condition of the Poor has published the results of six years of public health work in the Mulberry district of New York City. This survey, which was carried on from the Mulberry Health Center, embraces data pertaining to illiteracy, occupations, family earnings, unemployment, mortality and morbidity compiled for a population of approximately 35,000, living in an area of about 44 blocks, bounded by Houston and Canal Streets, Broadway and the Bowery.

The Mulberry district was selected for this study because it was believed to be typical of congested localities elsewhere in New York and in other large cities, where the predonderance of the population is either foreign born or of foreign parentage.

The study, which is illustrated by 22 charts, says in part:

Pneumonia—Leading Cause of Death

"Pneumonia is by far the leading cause of death. The average rate for the six-year perior was 4.35 per thousand, while the rate for New York City in the same period was 1.78.

"Since our health work is largely concerned with children of pre-school age, a detailed analysis was made of the causes of death of children from one to four years of age. It was found that pneumonia stands out even more prominently as a cause of death for children at this age, indeed nearly half (44.8) of all the deaths for persons of this age was attributed to this cause.

"What is needed is a popular educational campaign as to the dangers of this disease and the importance of proper treatment. The elimination of rickets in infants will do much to reduce mortality, particularly in young children. The Association for Improving the Condition of the Poor is at present engaged in a campaign of this sort in co-operation with the City Health Department.

(Concluded on page 26)